

FIFTH YEAR

NINTH SEMESTER (WINTER)						
Code	Course Title	L	P	S	TCH	ECTS
MFSE 0901	Surgery	130	240		370	25
MFSE 0902	Otorinolaringology and Maxillofacial	20	40		60	4
MFSE 0904-0913	Elective Course 1	10	10		20	1
	TOTAL	160	290		450	30

Elective courses:

MFSE 0904	Benign Prostatic Hyperplasia
MFSE 0906	Hand Trauma
MFSE 0908	Minimally Invasive Surgery and Surgery of Tomorrow
MFSE 0909	Psychosomatic Medicine and Consultation – Liaison Psychiatry
MFSE 0910	Rehabilitation of Patients with Spinal Cord Injuries
MFSE 0911	Sport traumatology
MFSE 0912	Fractures and dislocations of wrist
MFSE 0913	Screening and Epidemiology of Chronic Diseases

**COURSE PROGRAM FOR THE SUBJECT – SURGERY AT 9th SEMESTER OF THE
MEDICAL STUDY ACCORDING TO INTEGRATED CURRICULUM
(Winter semester – study year V)**

Subject	Weeks	Hours	Lectures	Practicals	ECTS
Surgery	12,5	370	130	240	25
General surgery	1,5	33	18	20	3
Abdominal surgery	2	60	20	40	4
Urology	1	30	10	20	2
Anesthesiology& Reanimation.	2	60	20	40	4
Vascular surgery	0,5	15	5	10	1
Cardiosurgery	0,5	16	6	10	1
Plastic and reconstructive surg.	0,5	15	5	10	1
Neurosurgery	0,5	15	5	10	1
Orthopedic and traumatology	2	60	10+10	20+20	4
Pediatric surgery	1	30	10	20	2
Chest surgery	1	31	11	20	2

Block 1. General surgery, Abdominal surgery , Urology----- 4 weeks

Block 2. Anaesthesiology, Vascular surgery, Cardiosurgery, Plastic and reconstructive surgery,
Neurosurgery ----- 4 weeks

Block 3. Orthopaedic surgery and traumatology, Pediatric surgery, Chest surgery-----4 weeks

PLAN OF THE WINTER SEMESTER – STUDY YEAR V

Week	Form of teaching	hours
Week 1. Monday-Friday	Lecture: General surgery (Monday-Friday)	5x3 hours
	Practice: Practice on the departments according to schedule (Monday-Friday)	5x3 hours
Week 2. Monday-Friday	Lecture: Abdominal surgery (Monday-Friday)	5x2 hours
	Practice: Practice on the departments according to schedule (Monday-Friday)	5x4 hours
Week 3. Monday-Friday	Lecture: Abdominal surgery (Monday-Friday)	5x2hours
	Practice: Practice on the departments according to schedule (Monday-Friday)	5x4 hours
Week 4. Monday-Friday	Lecture: Urology (Monday-Friday)	5x2hours
	Practice: Practice on the departments according to schedule (Monday-Friday)	4x4 hours +2 hours
	Practical exam 1	2 hours
Week 5. Monday-Friday	Lecture: Anesthesiology (Monday – Friday)	5x2 hours
	Practice: Practice on the departments according to schedule (Monday-Friday)	4x4 hours + 2 hours
	Partial exam 1	2 hours
Week 6. Monday-Friday	Lecture: Anesthesiology (Monday – Friday)	5x2 hours
	Practice: Practice on the departments according to schedule (Monday-Friday)	5x4 hours
Week 7. Monday-Friday	Lecture: Vascular surgery (Monday-Wednesday)	2+2 hours + 1hour
	Practice: Practice on the departments according to schedule (Monday-Wednesday)	2x4 hours + 2 hours
	Lecture: Cardiosurgery (Wednesday – Friday)	1 + 3+2 hours
	Practice: Practice on the departments according to schedule (Wednesday-Friday)	2x4 sata + 2 sata
Week 8. Monday-Friday	Lecture: Plastic and reconstructive surgery (Monday-Wednesday)	2x2 hours + 1 hour
	Practice: Practice on the departments according to schedule (Monday-Wednesday)	2x4 hours + 2 hours
	Lecture: Neurosurgery (Wednesday-Friday)	1 hour + 2x2 hours
	Practice: Practice on the departments according to schedule (Wednesday-Friday)	2x4 hours + 2 hours

	Practical exam 2	2 hours
Week 9. Monday-Friday	Lecture: Orthopedic surgery (Monday – Friday) Practice: Practice on the departments according to schedule (Monday-Friday) Partial exam 2	5x2hours 4x4 hours + 2 hours 2 hours
Week 10. Monday-Friday	Lecture: Traumatology (Monday-Friday) Practice: Practice on the departments according to schedule (Monday-Friday)	5x2hours 5x4 hours
Week 11. Monday-Friday	Lecture: Pediatric surgery (Monday – Friday) Practice: Practice on the departments according to schedule (Monday-Friday)	5x2 hours 5x4 hours
Week 12. Monday-Friday	Lecture : Chest surgery (Monday – Friday) Practice: Practice on the departments according to schedule (Monday-Friday)	4x2+3hours 5x4 hours
Week 13. Monday-Tuesday	Practice: (Monday) Practice : Practical exam 3 Lecture: Partial exam 3	3 hours 2 hours 3 hours
Week 13.	ENT and MAXILLOFACIAL SURGERY.	
Week 14.	ENT and MAXILLOFACIAL SURGERY.	
Week 15.	SUBJECT OF CHOICE	
Week 17-18	Final exam (regular term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar term)	

Code: MFSE 0901	Title of the course: SURGERY		
Level: clinical	Study year: V	Semester: IX	ECTS: 25
Status: obligatory	Total contact hours: 370		
Prerequisites:	According to the Study Regulation		
Lecturers and assistants: Professor Dželaludin Junuzović, MD PhD; Associate Professor Mustafa Hiroš, MD PhD; Associate Professor Ismet Suljević, MD PhD; Associate Professor Adnana Talić-Tanović, MD PhD; Associate Professor Benjamin Kulovac, MD PhD; Associate Professor Kemal Dizdarević, MD PhD; Associate Professor Sanela Salihagić, MD PhD; Assistant Professor Ademir Hadžismajlović, MD PhD; Assistant Professor Zlatan Zvizdić, MD PhD; Assistant Professor Amel Hadžimehmedagić, MD PhD; Assistant Professor Slavenka Štraus, MD PhD; Assistant Professor Nermir Granov, MD PhD; Assistant Professor Ilijaz Pilav, MD PhD; Assistant Professor Kenan Karavdić, MD PhD; Assistant Professor Senad Šečić, MD PhD; Senior ass. Nedžad Rustempašić, MD PhD; Senior ass. Eldin Burazerović, MD MSc; Senior ass. Sadeta Begić, MD MSc; Senior ass. Osman Hadžiosmanović, MD MSc; Senior ass. Adi Mulabdić, MD MSc; Ass. Adnan Papović, MD			
1. Overall aim	The overall aim of Surgery course is to train and habilitate student for recognizing the symptoms of the most common surgical diseases and injuries, to train student to carry out the primary surgical examination of the patient, to apply basic surgical procedures according to the diagnostic and therapeutic algorithms, and to manage the adequate transfer of the patient to the specified subspecialties as well.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>GENERAL SURGERY</p> <p>Through the lectures from the General surgery students will gain following knowledge:</p> <p>Module 1. Diagnostics in General Surgery The aim of this Module is to introduce the students to the elements and skills of the general surgical and special surgical propedeutics.</p> <p>Module 2. Aseptic and antiseptic The aim of this Module is to introduce the students to the implementation of the basic aseptic and antiseptic principles in surgery, methods of sterilization and disinfection, and preparation for the surgery.</p> <p>Module 3. Wound and wound healing The aim of this Module is to introduce the students to the classification and qualification of the wounds, physiology and pathophysiology of the wound healing process, primary surgical treatment of the wound, sewing technique and complications of the wound treatment.</p> <p>Module 4. Surgical infections The aim of this Module is to introduce the students to the factors and causes of surgical infections, specific kind of infections, principles of the surgical treatment, and principles of antibiotic usage in the treatment of the surgical infections.</p>		

	<p>Module 5. Bleeding, hemostasis and blood substituent The aim of this Module is to introduce the students to the types and consequences of the bleeding, patophysiology of the hemorrhagic shock, and practical procedures of the temporary and definitive hemostasis.</p> <p>Module 6. Surgical Oncology The aim of this Module is to introduce the students to the principles of surgical oncology</p> <p>Module 7. Surgical overview of the snake, insect, and other animal bite. The aim of this Module is to introduce the students to the surgical procedures in treatment of the snake, insect, and other animal bites.</p> <p>Module 8. Organization of the surgery in emergency situations The aim of this Module is to introduce the students to the organization of the surgical service in extraordinary conditions, to determining the sequential order of the urgent care and evacuation of the hurt and ill in case of mass affliction.</p> <p>Through the lectures from the General surgery students will gain the following competences:</p> <p><i>The skills students need to be able to perform practically (knows how and does)</i></p> <ul style="list-style-type: none"> - anamnesis and clinical examination of the surgical patient - methods and means of sterilization - procedures used in antiseptic disinfection - preparation of the surgeon's hands - preparation of the operative field - qualification of the wound, surgical treatment of the wound (the primary, deponent, secondary stitch, the proficiency in knot-tying, sewing materials, the necessary instruments for primary wound care, surgical drains) - incisions and puncture procedures of the inflammatory processes - temporary and permanent hemostasis methods (vascular clamp and ligature) - triage conduction - assessing the sequential order of priorities and system scoring in urgent surgical treatment in case of mass affliction and in extraordinary conditions. <p><i>The skills students need to possess (know how and when):</i></p> <ul style="list-style-type: none"> - interpretation of the most common diagnostic methods in surgery; - interpretation of the standard lab test results connected to certain surgical diseases and injuries - principles of wound care - indications for surgical treatment (vital, absolute, relative) - clinical signs of malignant disease i diagnostic-therapeutic algorithms. <p>Through the lectures student will gain next attitudes:</p> <ul style="list-style-type: none"> • Proper recognition, correct treatment and accurate primary surgical
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	<p>treatment of the wound is essentially important in everyday practice.</p> <ul style="list-style-type: none"> • Proper recognition of the vessel injury and adequate hemostasis significantly reduces mortality rate, and improves vitality of the organ or limb. • Correct implementation of the aseptic and antiseptic principles is important for reducing morbidity and mortality rate in postoperative period. • Exact preoperative preparation is essential for the successful operation. <p>ABDOMINAL SURGERY</p> <p>Through the lectures in Abdominal surgery students will gain following knowledge:</p> <p>Module 1. Diagnostics of the abdominal diseases and injuries The aim of this Module is to introduce student to methods of diagnostic algorithms in abdominal surgery, to most common causes of acute abdominal diseases, and importance of proper indications for urgent surgical intervention.</p> <p>Module 2. Acute abdomen The aim of this Module is to explain all features of acute abdominal syndrome, and most common etiological factors and treatment of acute abdomen as well.</p> <p>Module 3. Hernia and surgery of the abdominal wall The aim of this Module is to introduce student to all types of hernia of the anterior abdominal wall, and way of its treatment as well.</p> <p>Module 4. Surgery of the stomach, duodenum and spleen The aim of this Module is to inform student about the etiology, pathogenesis, and clinical presentation of the diseases of the stomach, duodenum and spleen, and differential diagnostics and options in surgical treatment.</p> <p>Module 5. Surgery of the small and large bowel The aim of this Module is to introduce student to etiology, pathogenesis, clinical presentation, differential diagnosis, indications and possibilities of the surgical treatment of the diseases, anomalies, and primary structural abnormalities of the large and small bowel.</p> <p>Module 6. Surgery of the rectum and anus The aim of this Module is to inform student about surgical pathology of the ano-rectal segment (inflammatory and malignant diseases, anorectal abscesses, anorectal and rectovaginal fistula, pylonidal disease).</p> <p>Module 7. Hepatic and biliar surgery The aim of this Module is to introduce student to diseases and injuries of</p>
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	<p>the liver and bile ducts (cysts, portal hypertension, gallstones, narrowing of the Oddies sphincter, chronic and acute cholecystitis with complications, surgical diseases of the gallbladder, primary and metastatic tumors of the liver).</p> <p>Module 8. Surgery of the pancreas The aim of this Module is to introduce student to surgical diseases of the pancreas (cysts, pseudo cysts, annular pancreas, ectopic pancreas, acute and chronic pancreatitis, tumors and injuries of the pancreas).</p> <p>Module 9. Laparoscopic surgery The aim of this Module is to introduce student to indications, advances, risks, and complications of minimally invasive surgical procedures.</p> <p>Module 10. Abdominal trauma The aim of this Module is to introduce student to penetrant and perforant injuries of the abdomen, clinical picture, first aid, and symptoms of the different injuries of the abdominal organs.</p> <p>Through the lectures from the Abdominal surgery students will gain the following competences:</p> <p><i>The skills students need to be able to perform practically (know how and does)</i></p> <ul style="list-style-type: none"> – to recognize muscular defense – to perform digitorectal examination – correct interpretation of the x-ray finding of the bowel obstruction (ileus) and intraabdominal liquid presence. – to perform correct clinical examination of the inguinal hernia and inguinal channel – palpation and percussion in the Lanz and Mc Burneys point – interetpretation of the basic hematological and biochemical analysis of the urine and blood taken from the patient with acute abdominal disease. <p><i>The skills students need to possess (know how and when):</i></p> <ul style="list-style-type: none"> – gastric tube placement – abdominal puncture – recognizing of the certain surgical infections – acute stomach dilatation recognizing – interpretation of the certain routine and specific diagnostic investigations of the abdominal conditions (ultrasound, CT, MRI, angiography, colonoscopy, gastroscopy). <p>Through the lectures student will gain next attitudes:</p> <ul style="list-style-type: none"> • Early recognition of the urgent conditions in abdominal surgery encourages definitive surgical treatment and final result of surgery. • Student should be aware that occult bleeding could be sign of the cancer.
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	<p>UROLOGY</p> <p>Through the lectures from the Urology students will gain following knowledge:</p> <p>Module 1. Semiology, symptoms and diagnostic in urology The aim of this Module is to acquire knowledge about terminology, basic symptoms of urological diseases, and their importance in differential diagnostics in urology.</p> <p>Module 2. Urogenital infection and urolithiasis The aim of this Module is to acquire knowledge about basic characteristics, diagnostics and therapeutic principles of urogenital infections and urolithiasis.</p> <p>Module 3. Urogenital trauma The aim of this Module is to introduce student to mechanisms and types of the urogenital trauma, its proper recognition and basic doctrinaire points of the primary care and definitive treatment.</p> <p>Module 4. Tumors of the kidney and adrenal gland The aim of this Module is to acquire knowledge about basic characteristic and kinds of the kidney and adrenal gland tumors, its early recognition, diagnostic and treatment.</p> <p>Module 5. Cystic kidney disease and obstructive uropathy The aim of this Module is to master knowledge of the cystic kidney disease and obstructive uropathy, its etiology, diagnostic and treatment.</p> <p>Module 6. Urothelial tumors and tumors of the bladder The aim of this Module is to introduce student to all kinds of urothelial tumors and tumors of the bladder, its early diagnosis and treatment.</p> <p>Module 7. Prostatic tumors The aim of Module is to introduce students to benign and malignant neoplasm of the prostatic gland, and basic diagnostic and therapeutic algorithms as well.</p> <p>Module 8. Tumors of the testicles, penis and urethra The aim of Module is to introduce student to diagnosis, and therapy of the Tumors of the testicles, penis and urethra.</p> <p>Module 9. Male infertility and erectile dysfunction The aim of Module is to acquire knowledge about etiology, diagnosis and therapy of the male infertility and erectile dysfunction.</p> <p>Module 10. Neurogenic bladder and incontinency The aim of this Module is to acquire knowledge about etiology, classification and treatment of the neurogenic bladder and incontinency.</p> <p>Module 11. Kidney transplantation</p>
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	<p>The aim of this Module is to introduce student to kidney transplantation, principles of follow up of the transplanted patient, and surgical complications.</p> <p>Through the lectures from the Urology students will gain the following competences:</p> <p><i>The skills students need to be able to perform practically (know how and does):</i></p> <ul style="list-style-type: none"> - specific urological anamnesis - kidney palpation - correctly sampling for urine analysis - digito-rectal examination of the prostatic gland - palpation of the male genital organs - physical examination of the testicular cord and tunica - bladder catheterization in male and female - interpretation of the laboratory results of the urine tests and cultures. - interpretation of the native x-ray of the urine-tract. <p><i>The skills students need to possess (know how and when):</i></p> <ol style="list-style-type: none"> 1. Interpretation of the diagnostic methods: <ul style="list-style-type: none"> - intravenous urography - retrograde ureteropielography - ureterocystography - selective angiography of the renal arteries - ultrasound examination of the urotract - CT and MRI of certain urological pathology - dynamic and static scintigraphy of the kidney 2. Bimanual palpation of the bladder 3. Basic technical principle of the urodynamic tests 4. Basic technical principle of the endoscopic examination 5. Basic principles of the cystostomia 6. Basic principles of the kidney cyst puncture and nephrostomy 7. Basic principles of the ultrasound guided biopsy of the prostatic gland. 8. Basic principles of the extracorporal schock wave lithotripsy (ESWL). <p>Through the lectures student will gain next attitudes:</p> <ul style="list-style-type: none"> • Urological case is very common in everyday's practice. • Early and exact diagnosis can lead to desired outcome and quality of life. • Doctrinaire attitudes from diagnostic and therapeutic protocols are essential for choice of the surgical procedure and successful treatment. • Communication with patient, information about operative plan and conversation about type of surgical procedure is fundamental for modern approach to urological patient. • Functional habilitation of the patient is necessary for the preservation of the working condition and quality of life.
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ANESTHESIOLOGY AND REANIMATION

Through lectures the students are to gain **knowledge on following topics:**

Module 1. The principles of anesthesiology

The aim of Module is to introduce the students to the history, evolution and perspectives of anesthesiology, to present the principles of anesthesiology as well as the medico-legal responsibilities.

Module 2. Hydromineral balance of the surgical patient

The aim of Module is to introduce the students to the significance and methods of hydro mineral balance maintenance of the surgical patient, to define and classify the changes in tissue fluid as well as the water loose syndrome.

Module 3. Pathophysiology of shock, clinical image and diagnostics

The aim of Module is to introduce the students to the types of shock, clinical image characteristics of certain types of shock as well as the basics of diagnostics and therapeutic options for shock treatment.

Module 4. Anesthesiologic pharmacology

The aim of Module is to introduce the students to the anesthesiologic strategy during the ordination of anesthetics.

Module 5. Types of anesthesia, general, regional and local anesthesia

The aim of Module is to introduce the students to the types of anesthesia as well as the choice of a certain type of anesthesia for a certain surgical operation.

Module 6. Organism response to trauma and surgical operation

The aim of Module is to introduce the students to the patophysiological reactions and their clinical manifestations during trauma caused by injury or surgical operation.

Module 7. Analgosedation, analgesia i pain management.

The aim of the module is to introduce the students to the methods of postoperative analgesia maintenance as well as strategies of painful syndromes' management.

Module 8. The principles of reanimatology.

The aim of Module is to introduce the students to measures of cardiopulmonary resuscitation as well as reanimation in special conditions: reanimation during the late pregnancy, pulmonary embolism, anaphylaxis, status epilepticus, poisoning, drowning, and freezing.

Module 9. Acid-base imbalance, homeostasis maintenance

The aim of Module is to introduce the students to the monitoring strategy and corrections of acid-base balance during maintenance of surgical patient's energetic balance in the intensive care unit.

Module 10. Advance Life Support – ALS protocol.

	<p>The aim of Module is to introduce the student to the protocols for advanced maintenance of vital functions.</p> <p>Through lectures the students will gain following skills:</p> <p><i>Skills students need to be able to perform practically (know how and does):</i></p> <ul style="list-style-type: none"> – examining the medical documentation and the patient as a part of preanesthetic visit, determining ASA-score – inserting the oropharyngeal tube, laryngeal mask and applying the mechanic ventilation – application technique for high and low oxygen flow (balloon reservoir) – tracking the monitoring: pulse oximetry, arterial pressure, capnography, ECG, defibrillation techniques – tracking the excrement in surgical patients: via surgical drains, gastric tube, urinary catheter; compensation for the loss – curing the isotonic, hypotonic and hypertonic dehydration – curing the hyperhydratation – dosage and pareparation of solutions of sympathomimetic drugs, analgesics, sedative drugs; application through perfusors or infusor pumps – managing medical records: monitoring organ functions, try lists and in therapy, registering test results in therapy lists and in medical history forms – placing the canila in peripheral veins <p><i>Skills students need to obtain (know how and when):</i></p> <ul style="list-style-type: none"> – endotracheal intubation – connecting the patient to the anesthetic machine – intraoperative monitoring (blood pressure, ECG, SpO2) – spinal i epidural anesthesia – applying different modes of breathing on a respirator – placing cannels in central veins, measuring the central vein pressure (CVP) and arterial pressure – curtailing the epileptic status; barbiturate-induced coma. <p>After attended lectures the students will be able gain the following attitudes:</p> <ul style="list-style-type: none"> • Recognizing and providing for urgent conditions (shock, anaphylaxis, consciousness disorders, anaphylactic reactions), as well as the primary treatment and a timely transfer of the patient will secure a successful survival. • Preparing the patient for anesthesia as a part of the preoperative preparations is necessary for evading intra- and perioperative complications. • Understanding advanced cardiopulmonary resuscitation techniques is necessary for saving the vitally endangered patient.
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VASCULAR SURGERY

Through the Modules the students will gain following **knowledge**:

Module 1. Acute ischaemia

The aim of this Module is to introduce the students to the causes, clinical manifestations of acute occlusion of peripheral arteries as well as the adequate treatment of these conditions.

Module 2. Blood vessel injuries

The aim of this Module is to introduce the students to clinical manifestations of vascular trauma as well as the surgical treatment of these conditions.

Module 3. Chronic ischaemia and peripheral artery diseases

The aim of this Module is to introduce the students to etiopathogenesis, clinical presentation and therapy options for chronic extremity and visceral ischaemia as well as extracranial stenosis and occlusion of carotid and vertebral artery.

Module 4. Aneurysmal artery disease (dilatations and aneurysms)

The aim of this Module is to introduce the students to the etiopathogenesis of aneurysmal dilatation, their complications as well as to point out therapy options depending on the localization of aneurysmatic changes.

Module 5. Surgical aspect of dilated and thrombosed peripheral veins, as well as the surrounding oedema due to lymphostasis

The aim of this Module is to introduce the patient to the clinical presentation and surgical treatment of different types of vein diseases, clinical presentation and surgical treatment of lymphoedema, as well as differential-diagnostic review of other conditions that cause extremity oedema.

Through lectures students will obtain following **skills**:

Skills students need to be able to perform practically (know how and does):

- evaluate the presence of peripheral arterial pulsations on areas of predilection
- auscultatory detection of systolic murmur on a stenosed artery
- treatment of a bleeding varicosity on a lower extremity

Skills students need to understand (know how and when):

- recognizing aneurysmal and thrombotic abdominal and lower extremity changes
- therapeutic modalities in diagnostics and deep vein thrombosis.

After attended lectures the students should obtain the following **attitudes**:

- Interdisciplinary approach is very important in the lowering atherosclerosis risk factors.
- Atherosclerosis must be observed as a polyvascular disease.

CARDIAC SURGERY

Through the lectures the students will gain following **knowledge**:

Module 1. Introduction to cardiac surgery

The aim of Module is to introduce the students to the technique of extracorporeal circulation as well as basic types of open-heart surgery.

Module 2. Surgical treatment of ischemic heart disease (IHD)

The aim of Module is to introduce the students to the basic features of ethiopathogenesis, diagnostics and surgical treatment of IHD.

Module 3. Methods of surgical treatments for valvular heart diseases

The aim of Module is to introduce the students to the basics of ethiopathogenesis, diagnostics and surgical treatment of valvular heart diseases.

Module 4. Blood vessel diseases

The aim of Module is to introduce the students to blood vessel diseases in thorax area and ways of surgical and endovascular treatment.

Module 5. Congenital heart defects

The aim of Module is to introduce the students to the congenital heart defects with increased and reduced pulmonary blood flow as well as obstructive lesions, diagnostic and surgical treatment of side effects.

Through lectures students will obtain following **skills**:

Skills students should be able to perform practically (know how and does):

- approach technique of clinical examination of a cardiac surgical patient with numerous comorbidities
- problematic oriented taking of anamnesis and physical status
- auscultation of cardiac and vascular phenomena
- interpretation of clinical signs and diagnostic procedures
- understanding of patients documentation, especially discharge letter
- defibrillator handling

Skills students should understand (know how and when):

- manual actions connected to bandaging the sternotomy and saphenectomy as well as estimating the stability of sternum
- interpreting correctly the parameters of the hemodynamic monitoring
- handling specific instruments

After attended lectures the students should obtain the following **attitudes**:

- Real possibilities of cardiac surgery are not recognized yet.
- Team work and interdisciplinary approach is of great importance in cardiac surgery.

PLASTIC AND RECONSTRUCTIVE SURGERY

Through lectures students will gain following **knowledge**:

Module 1. Classification, types and application of tissue transplants

The aim of this Module is to inform student about types and classification of free skin transplants and other types of tissue transplants and grafts.

Module 2. Hand reconstruction and reconstruction of the limb.

The aim of this Module is to introduce student to pressure ulcers care, replantation procedure and reconstruction of the hand nerves, tendons and muscles as well.

Module 3. Diagnostics and treatment of the thermal injuries

The aim of this Module is to introduce students to classification of the burn, cold and chemical injuries, its clinical appearance and options of surgical treatment.

Module 4. Tumors of the skin and soft tissues

The aim of this Module is to introduce student to classification and morphology of the benign and malignant skin tumors, options of surgical treatment, sentinel diagnostics, and indications for lymphadenectomy.

Module 5. Basic principles of the esthetic surgery and microsurgery

The aim of this Module is to inform students about basic principles of the esthetic surgery and microsurgery.

Through lectures students will obtain following **skills**:

Skills students should be able to perform practically (know how and does):

- obtaining the anamnestic data
- treatment of the burns (nonoperative treatment, indications for the surgery, and surgical options for the treatment of the burn injuries.
- stitching skills and handling the instruments
- local treatment of the wound and dressing skills
- examination of the patient with peripheral nerv injury
- recognizing the signs of the tendon injury
- recognizing the clinical and x-ray signs of the hand fracture.

Skills students should understand (know how and when):

- harvesting of the free skin grafts and other tissue transplants
- using of the surgical microscope and microsurgical technique during the nerve and vascular repair
- principles of the revascularization and replantation
- sentinel diagnostics and lymphadenectomy in the treatment of the malignant melanoma
- principles of the pressure ulcer treatment.

After attended lectures the students should obtain the following **attitudes**:

- Properly performing surgical treatment contributes to patients

recovery.

- Adequate diagnostics and indication is essential for the successful surgery.

NEUROSURGERY

Through lectures students will gain following **knowledge**:

Module 1. Craniocerebral injuries and spaciocompressive syndrome

The aim of this Module is to introduce students to all kinds of craniocerebral trauma (classification, diagnostics, initial and definitive treatment).

Module 2. Trauma of the spine

The aim of this Module is to introduce student to all kinds of the spinal injuries (classification, diagnostics, initial and definitive treatment).

Module 3. Cerebrovascular diseases

The aim of this Module is to inform students about A-V malformations of the brain, intracranial aneurysms, intracranial bleeding and revascularization of the brain.

Module 3. Congenital anomalies of the central nervous system (CNS)

The aim of this Module is to inform students about congenital anomalies of the CNS.

Module 4. Neurosurgical oncology

The aim of this Module is to inform student about tumors of the CNS.

Through lectures students will obtain following **skills**:

Skills students should be able to perform practically (know how and does):

- basics of the neurosurgical examination
- to demonstrate stages of the consciousness according to Glasgow Coma Score system, and to recognize basic disorders (somnia, sopor, coma)
- clinical approach to the patient in coma and recognizing the different motoric responses in such patient
- to recognize the signs of the intracranial hypertension and focal neurological disorder as a consequence of structural intracranial lesion
- to recognize the signs of the hydrocephalus
- to recognize the difference between CT and MRI of the brain
- to recognize the signs of the acute bleeding at the CT scan.

Skills students should understand (know how and when):

- how to prepare for the lumbar puncture and continuous external lumbar drainage
- how to prepare for the monitoring of the intracranial pressure

– recognizing of the most common compressive neurovascular syndrome (trigeminal neuralgia).

After attended lectures the students should obtain the following **attitudes**:

- Recognizing and prompt treatment of the neurosurgical injuries and diseases are essential for the successful surgical outcome.
- Early recognition of the cranial nerve palsy could be the first sign which will lead to discover the serious intracranial pathology.

ORTOPEDIC SURGERY AND TRAUMATOLOGY

Through lectures students will gain following **knowledge**:

Module 1. Congenital and acquired deformities of the osteoarticular system of the children and adults

The aim of this Module is to inform student about etiology and pathogenesis of the congenital and acquired deformities of the osteoarticular system of the children and adults (osteo-chondro-dysplasia, achondroplasia, osteogenesis imperfecta, metabolic and degenerative diseases of the joints, development disorder of the hip and foot, idiopathic congenital scoliosis and kyphosis), early diagnostics, classification and treatment.

Module 2. Spondylitis and degenerative diseases of the spine

The aim of this Module is to introduce student to clinical signs, diagnostic and treatment of spondylitis and spondylarthritis.

Module 3. Tumors of the bones and soft tissue

The aim of this Module is to inform students about clinical appearance, diagnostic, classification and therapy of the benign and malignant tumors of the bones and soft tissue.

Module 4. Infections in osteoarticular surgery

The aim of this Module is to introduce students with specific and nonspecific infections, their acute and chronic forms, and primary and secondary infect in osteoarticular surgery.

Module 5. Artificial joints

The aim of this Module is to introduce student to indications for the arthroplasty, models, components and tribology of the endoprotetics.

Module 6. Injuries of the soft tissue (muscles, tendons, ligaments, meniscus)

The aim of Module is to inform students about consequences of the injuries of the soft tissue, clinical tests and treatment of the injuries as well.

Module 7. Bone fractures and injuries of the upper extremity joints

The aim of Module is to introduce student to clinical appearance, diagnostics, classification and treatment of the fractures and dislocations

	<p>of the shoulder, arm, elbow, forearm, and hand.</p> <p>Module 8. Pelvic injuries and their treatment The aim of this Module is to introduce student to diagnostic procedures, categorization and initial prehospital treatment of the pelvic injury.</p> <p>Module 9. Bone fractures and injuries of the lower extremity joints The aim of Module is to inform students about the classification, clinical appearance, diagnostics, and treatment of dislocation and fracture of the hip, femur, knee, tibia, talo-crural joint and foot.</p> <p>Module 10. Trauma of the spine The aim of Module is to introduce the student to general protocol of initial treatment of the spinal injury.</p> <p>Module 11. Polytrauma The aim of this Module is to inform student about primary clinical examination, diagnostic, categorization, and initial prehospital and hospital treatment of the polytraumatized patient.</p> <p>Through lectures students will obtain following skills:</p> <p><i>Skills students should be able to perform practically (know how and perform):</i></p> <ul style="list-style-type: none"> – specifics of the anamnesis and examination of the patient with loco motor injury or disease – measurement of the joint movement and length of the limb – examination and local finding of the bone tumor – interpretation of the x-ray – interpretation of some laboratory finding, analysis of the sinovia – indirect extension placement – basic immobilisation <p><i>Skills students should understand (know how and when):</i></p> <ul style="list-style-type: none"> – indications for the arthroplasty – joint puncture – intraarticular injection – reposition of the fracture and dislocation – ultrasound examination of the development disorder of the hip – direct extension obtaining. <p>After attended lectures the students should obtain the following attitudes:</p> <ul style="list-style-type: none"> - Proper assessment of the osteoarticular pathology is essential for the successful outcome of the treatment. - Following the guidelines of good clinical practice is optimal way to achieve satisfactory recovery.
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PEDIATRIC SURGERY

Through lectures students will gain following **knowledge**:

Module 1. Semiology, symptoms and diagnostics in pediatric surgery

The aim of this Module is to inform student about terminology, basic symptoms of the pediatric surgical diseases, their importance and specificity, differential diagnostics and basic principles of the pediatric surgery.

Module 2. Neonatal surgery

The aim of this Module is to introduce student to basic characteristics of neonatal surgery, diagnostics and treatment.

Module 3. Pediatric urology

The aim of Module is to inform student about basic symptoms in pediatric urology, congenital anomalies of the urogenital system, and its diagnostic and treatment as well.

Module 4. Pediatric gastrointestinal surgery

The aim of Module is to introduce the student to basic characteristics of congenital anomalies and diseases of the gastrointestinal system, its diagnostics and treatment as well.

Module 5. Trauma and burn injuries in childhood

The aim of this Module is to introduce the students to the most common pediatric trauma and burn injuries, its diagnostics and all kinds if treatment.

Module 6. Pediatric surgical oncology

The aim of this Module is to gain the knowledge about basic characteristics and types of tumors in pediatric age, its early recognition, diagnostic and treatment as well.

Through lectures students will obtain following **skills**:

Skills students should be able to perform practically (know how and perform):

- anamnesis in pediatric surgery patients
- clinical examination of the abdomen in pediatric surgery
- digital-rectal examination in pediatric surgery
- wound care and dressing of the burn injuries in pediatric patients
- native x-ray interpretation of the digestive tract atresia
- digestive tract and urinary tract contrast radiography in anomalies
- microbiological sampling and umbilical care
- enema in neonatal surgery
- inguinal examination and variety of the inguinal hernia in childhood, incarceration, Taxis
- inguinal and scrotal examination of the undescended testicles
- bladder catheterization of the children.

	<p><i>Skills students should understand (know how and when):</i></p> <ul style="list-style-type: none"> - to recognize the esophageal atresia - to recognize the congenital anomalies of the abdominal wall - to recognize the hypertrophic pyloric stenosis - to recognize the anomalies of the anal-rectal area - to recognize the obstruction of the bile ducts - to recognize the acute scrotal disease in children - to recognize the varicocele and genital anomalies in childhood - to recognize the congenital megacolon - to recognize the anomalies of the kidney, ureter, and bladder in pediatric patients. <p>After attended lectures the students should obtain the following attitudes:</p> <ul style="list-style-type: none"> - Following the diagnostic and therapeutic protocols are essential for the treatment of pediatric diseases and trauma. - Clear diagnosis has to be established before surgery. - Choice of surgical procedure has to be made according to guidelines of good clinical practice. - Communication with parents, correct information and training could be helpful for the rehabilitation of the child. <p>CHEST SURGERY</p> <p>Through lectures students will gain following knowledge:</p> <p>Module 1. Semiology, symptomatology and diagnostics in chest surgery</p> <p>The aim of this Module is to introduce student with the terminology, specificity, basic symptoms of the thoracic-surgical diseases and their importance for the differential diagnostics and treatment.</p> <p>Module 2. Most common pulmonary diseases in thoracic surgery</p> <p>The aim of this Module is to gain the knowledge about the basic surgical characteristics of the pulmonary tumors (benign, malignant), inflammatory and similar diseases (pulmonary abscess, bronchiectasiae, tuberculosis, respiratory distress syndrome, atelectasis) as well as parasite (pulmonary echinococcus) diseases, their diagnostics and therapeutic principles.</p> <p>Module 3. Most common pleural diseases</p> <p>The aim of this Module is to inform the students about the basic surgical characteristics of the most common pathological conditions of the pleura (all kinds of pneumothorax, pleural effusions, empyema, mesotheliom...) their recognition, diagnostics and treatment.</p> <p>Module 4. Chest wall diseases</p> <p>The aim of this Module is to inform student about most common surgical diseases of the chest wall (congenital developmental anomalies such as hollowed chest - pectus excavatum, pigeon chest - pectus carinatum, tumors and inflammatory diseases of the chest wall) diagnostics and</p>
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therapeutic options.

Module 5. Chest injuries

The aim of this Module is to introduce student to the mechanisms and all kinds of the chest injuries (rib fractures, contusions, complications caused by rib fractures, sterna fractures, flail chest, hemothorax, lung contusion, rupture of the main airways), opened injuries of the chest (nonpenetrant and penetrant, particularly opened traumatic pneumothorax) its recognition, basic principles of the primary and definitive care.

Module 6. Most common surgical diseases of the trachea and esophagus

The aim of this Module is to introduce the student to basic characteristics and all kinds of surgical diseases which are affecting major air (tumors, obstructions) as well as foreign bodies in respiratory airways, their recognizing and treatment.

Module 7. Surgery of the mediastinum

The aim of this Module is to inform student about characteristics, etiology, classification, diagnostics and basic principles of the mediastinal infections treatment, mediastinal tumors treatment, treatment of the superior vena cava syndrome, and treatment of the pneumomediastinum.

Module 8. Surgery of the diaphragm

The aim of this Module is to inform the student about congenital diaphragmatic hernias, diaphragmatic rupture, eventration and relaxation of the diaphragm, its diagnostic and treatment.

Module 9. VATS – Video Assisted Thoracic Surgery

The aim of this Module is to inform the student about basic principles, specificities, and possibilities of the endoscopic procedures in chest surgery.

Module 10. Breast surgery

The aim of this Module is to introduce students to basic knowledge of most common surgical diseases of the breast (malignant and benign tumors, cysts and inflammatory diseases, mastopathy, asymmetry of the breasts, anomalies and ginecomastia), their diagnostics and therapy.

Through lectures students will obtain following **skills**:

Skills students should be able to perform practically (know how and does):

- anamnesis specificities in breast and chest surgery patient
- chest wall inspection
- chest wall palpation
- auscultation of the heart and breathing sounds
- palpation of the neck
- breast inspection and palpation
- interpretation of the x-ray at most common thoracic diseases and injuries

	<p>– thoracic drainage tube removing.</p> <p><i>Skills students should understand (know how and when):</i></p> <ol style="list-style-type: none"> 1. Interpretation of the common diagnostic procedures in chest surgery: <ul style="list-style-type: none"> – lung function tests in preoperative assessment of the patient – preoperative internal preoperative assessment of the patient – bronchoscopy in preoperative assessment of the patient – CT scan and MRI of the chest as an important part of the indication for chest surgery – pulmonary ventilation and perfusion scintigraphy 2. Thoracocentesis (pleural puncture) 3. Thoracic (pleural) drainage 4. Importance of the common diagnostic methods interpretation in breast surgery: <ul style="list-style-type: none"> – mammography – ultrasonic examination of the breast – fine aspiration needle biopsy of the breast pathology <p>After attended lectures the students should obtain the following attitudes:</p> <ul style="list-style-type: none"> • Surgical diseases of the chest and breasts are commonly seen in everyday practice, so early recognition and adequate diagnostics could significantly influence on favorable outcome of the treatment. • Following the diagnostic and therapeutic protocols is essential for the successful surgery. • Choice of the procedure based on guidelines of the good clinical practice is necessary. • Fast functional rehabilitation followed by the improving of the quality of patients life is mandatory for the future working and living activities.
3. Learning methods	<p>The course will be realized through:</p> <ul style="list-style-type: none"> - Lectures – 130 hours - Practicals – 240 hours <p>Teaching methods:</p> <ul style="list-style-type: none"> – interactive, theoretical and practical teaching – small groups of students – “Peyton’s 4-steps approach” (problem based learning), and OSCE method (an objective structured clinical examination) will be applied for practical teaching.
4. Knowledge assesment methods	<p>Knowledge assesment is will be conducted continously through the semester and on the Final exam. All parts of the exam have to be realized and evaluated.</p> <p>Continuous knowledge assessment</p> <p>Continuous knowledge assessment includes: Partial exam 1 (subject matters from Course block 1. - General surgery, Abdominal surgery and Urology), Partial exam 2 (subject matters from Course block 2 – Anesthesiology and Reanimation, Vascular surgery, Cardiac surgery, Plastic and reconstructive surgery and Neurosurgery) and Partial exam 3 (subject matters from Course block 3 – Orthopedic and Traumatology,</p>

	<p>Pediatric surgery and Chest surgery), Practical exam 1, Practical exam 2 and Practical exam 3. Parts of the exam which student did not pass has to be evaluated on the Final exam.</p> <p>Practical exam 1 Practical exam 1 implies assessment of the acquired skills from the following subject matters: General surgery, Abdominal surgery and Urology. The acquired skills will be evaluated through the solving the tasks that are previously defined on the check list. Student will get one check list from the each subject matter (6 tasks from the General surgery, 8 tasks from the Abdominal surgery and 6 tasks from the Urology). Each successfully solved task carries 0.5 points. Maximal score that could be achieved on Practical exam 1 is 10 points.</p> <p>Practical exam 2 Practical exam 2 implies assessment of the acquired skills from the following subject matters: Anesthesiology and Reanimation, Vascular surgery, Cardiac surgery, Plastic and Reconstructive surgery and Neurosurgery. The acquired skills will be evaluated through the solving the tasks that are previously defined on the check list. Student will get one check list from the each subject matter (8 tasks from the Anesthesiology and Reanimation and 3 tasks out of each subject matter - Vascular surgery, Cardiac surgery, Plastic and Reconstructive surgery and Neurosurgery). Each successfully solved task carries 0.5 points. Maximal score that could be achieved on Practical exam 2 is 10 points.</p> <p>Practical exam 3 Practical exam 3 implies assessment of the acquired skills from the following subject matters: Orthopedic and Traumatology, Pediatric surgery, and Chest surgery. The acquired skills will be evaluated through the solving of the tasks that are previously defined on the check list. Student will get one check list from the each subject matter (8 tasks from the Orthopedic and Traumatology , 4 tasks from the Pediatric surgery, and 3 tasks from the Chest surgery). Each successfully solved task carries 0.5 points. Maximal score that could be achieved on Practical exam 3 is 7.5 points.</p> <p>Total sum of points that could be captured on this part of continuous knowledge assessment is 27.5 points. At least over-half score out of each subject matter has to be captured to pass the exam. Points from this part of exam will be added to the points realized on the other parts of the exam to form the final mark.</p> <p>Partial exam 1 Partial exam 1 is formed as a written test within 50 multiple choice questions (MCQ) (20 MCQ from the General surgery, 15 MCQ from the Abdominal surgery, and 15 MCQ from the Urology). Every correct answer carries 0.5 points. Maximal score that could be achieved on Partial exam 1 is 25 points. Student has to capture at least 13.5 points to pass the exam (at least 5.5 points from the General surgery, at least 4 points from the Abdominal surgery, and at least 4 points from the Urology) Points</p>
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	<p>from this part of exam will be added to the points realized on the other parts of the exam to form the final mark.</p> <p>Partial exam 2 Partial exam 2 is formed as a written test within 50 MCQ questions (10 MCQ from Anesthesiology and Reanimation; 10 MCQ from the Neurosurgery; 10 MCQ from the Plastic and Reconstructive surgery; 10 MCQ from the Cardiac surgery; and 10 MCQ from the Vascular surgery). Every correct answer carries 0.5 points. Maximal score that could be achieved on Partial exam 2 is 25 points. Student has to capture at least 15 points to pass the exam (at least 3 points out of each mentioned subject matters). Points from this part of exam will be added to the points realized on the other parts of the exam to form the final mark.</p> <p>Partial exam 3 Partial exam 3 is formed as a written test within 45 MCQ questions (Orthopedics and Traumatology 20 MCQ questions, Pediatric surgery 15 MCQ questions and Chest surgery 10 MCQ questions). Every correct answer carries 0.5 points. Maximal score that could be achieved on Partial exam 3 is 22.5 points. Student has to capture at least 12.5 points to pass the exam (at least 5.5 points from the Orthopedics and Traumatology, at least 4 points from the Pediatric surgery, and at least 3 points From the Chest surgery). Points from this part of exam will be added to the points realized on the previous parts of the exam to form the final mark.</p> <p>Final exam Final exam is oral test of knowledge from those areas that have not been passed on the previous exam parts. Complete practical exam has to be passed to approach to the Final exam. Parts of the practical exam that have not been passed should be realized according to the previously presented principles of the acquired skills evaluation. Oral exam and evaluation of knowledge is based on answers to questions printed on certified test card. All test cards are in the deck and students randomly choose one of them. Questions are arranged and distributed according to blocks of teaching areas:</p> <p>Student which did not pass Partial exam 1 draw the card from the deck of Block I with questions from the subject matters: General surgery (2 questions – maximal 10 points), Abdominal surgery (2 questions - maximal 10 points), and Urology (1 question – maximal 5 points). Maximal score responds to maximal score of Partial exam 1 and it is 25 points. Student has to capture at least 14 points to pass the exam.</p> <p>Student which did not pass Partial exam 2 draw the card from the deck of Block II with questions from the subject matters: Anesthesiology and Reanimation (1 question – maximal 5 points), Neurosurgery (1 question – maximal 5 points), Plastic and Reconstructive surgery (1 question – maximal 5 points), Cardiac surgery (1 question – maximal 5 points), and Vascular surgery (1 question – maximal 5 points). Maximal score responds to maximal score of Partial exam 2 and it is 25 points. Student has to capture at least 14 points to pass the exam.</p>
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	<p>Student which did not pass Partial exam 3 draw the card from the deck of Block III with questions from the subject matters: Orthopedics and Traumatology (2 questions - maximal 10 points), Pediatric surgery (2 questions - maximal 7.5 points) and Chest surgery (1 question - maximal 5 points). Maximal score responds to maximal score of Partial exam 3 and presents 22.5 points. Student has to capture at least 12 points to pass the exam.</p> <p>Details from the Final exam are documented on the exam list which contents students name, index number, test card number, date of the exam and all questions from the card. After assessment of the knowledge, the examining teacher writes the result and verifies the exam by his signature. The exam list remains with the portfolio of each student, and each examiner must enter data from exam into the Book of exams.</p> <p>Repeated and Remedial exam Parts of the exam that student have not passed are evaluated orally on the Repeated and Remedial exam according the rules of Final exam.</p> <p>Evaluation of the results, grade and marks Total number of points captured through the all kinds of knowledge assessment translates in a final result as it is shown:</p> <table><tr><th><i>Mark-grade</i></th><th><i>Total points</i></th><th><i>Description</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>Exceptional and remarkable success without or with insignificant faults</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above standard, with some faults</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with notable faults</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good, but with significant faults</td></tr><tr><td>6 (E)</td><td>55-64</td><td>Meets the minimum criteria</td></tr><tr><td>5 (F, FX)</td><td><55</td><td>Does not meet the minimum criteria</td></tr></table>	<i>Mark-grade</i>	<i>Total points</i>	<i>Description</i>	10 (A)	95-100	Exceptional and remarkable success without or with insignificant faults	9 (B)	85-94	Above standard, with some faults	8 (C)	75-84	Average, with notable faults	7 (D)	65-74	Generally good, but with significant faults	6 (E)	55-64	Meets the minimum criteria	5 (F, FX)	<55	Does not meet the minimum criteria
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5. Literature	<p>Obligatory:</p> <p>- Brunicardi FC, Andersen DK, Billiar TR, Dunn DL, Hunter JG, Matthews JB, Pollock RE. Schwartz’s Principles of surgery (10th edition). McGraw Hill Companies; 2015.</p> <p>Additional:</p> <p>– Mulholland MW, Lillemoe KD, Doherty GM, Maier RV, Upchurch GR Jr, Alam H, Pawlik TM. Greenfield's Surgery: Scientific Principles and Practice (5th edition). Wolter Kluwers; 2017.</p>																					
6. Remark	<p>Lectures and practices are performed according to implementation plan at the teaching bases of the Surgical Cathedra. Valid sanitary booklet and proper clothing are mandatory for student’s attendance.</p> <p>All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultation period for students is each working day pre-reserved with the teaching staff.</p>																					

PLAN AND PROGRAM OF TEACHING - THE SUBJECT *SURGERY*

COURSE CONTENT AND SCHEDULE: GENERAL SURGERY

Week 1.	Form of teaching (lectures / practice)	hours
Monday	Lecture: General surgical diagnosis, general surgical propaedeutic with general and special methods of patient examination. Puncture, catheterization, biopsy, diagnostic x-ray procedures, endoscopy.	3
	Practice: Basic principles of surgical propaedeutic. Laboratory diagnosis in surgery. Noninvasive and invasive diagnostic procedures in surgery. Preoperative assessment and preparation of patient. Postoperative follow up.	3
Tuesday	Lecture: Asepsis and antisepsis. Surgical infections. Factors and causes of aerobic and anaerobic infections in surgery. Treatment of surgical Infections.	3
	Practice: Sterilization methods (sterilization by boiling water, steam-sterilization under pressure, sterilization with hot dry air, flame sterilization, gas sterilization). Modern methods of sterilization. Procedures used in antisepsis-disinfection. Disinfectants. Surgical hand preparation. An introduction to the operating theatre. Preparation of the operating field. Infections in surgery. Principles of active surgical treatment of infections in surgery.	3
Wednesday	Lecture: The wound and wound healing. Classification and management of wound, principle of wound healing, principles of primary and secondary wound management, complications during wound healing. Surgical management of snake, insects and mammals stings and bites.	3
	Practice: Local and regional anaesthetic techniques in surgical wound management. Categories of wound closure (closure by primary intent or primary wound closure, closure by tertiary intent or delayed primary closure, closure by secondary intent). Types of sutures used in surgery, Techniques and skills of surgical knot tying. Suture material and ligatures. Monitoring wound healing (bandage a wound). Treatment of infected surgical wounds. Emergency treatment of a snake and rabid animal bites (lymphatic constrictive bandage, venous absorption techniques, specific treatment).	3
Thursday	Lecture: Bleeding, hemostasis and blood substitutes. External and internal haemorrhage and its consequences in the onset of shock. Systemic and iatrogenic causes of bleeding. Specificity of surgery in emergency situations (organization, triage, evacuation, methods of disposing).	3

	Practice: Introduction to the methods and procedures of temporary and permanent hemostasis. Overall assessment of the patient and his vulnerability (the practical application of a scoring system). Creating an action plan for emergency surgical medical services on mass injuries.	3
Friday	Lecture: General surgical oncology. The basic postulates of the diagnosis of surgical and adjuvant treatment in oncological surgery. Practice: Clinical signs and symptoms of malignant disease, diagnostics. Contemporary protocols for oncology patients' therapy. Monitoring and controlling the patient and predicting outcomes.	3 3

COURSE CONTENT & SCHEDULE: ABDOMINAL SURGERY

Week 2.	Form of teaching (lectures / practice)	hours
Monday	Lecture: Diagnosis of abdominal diseases and injuries. Practice: Indications and contraindication of surgery. Basic principles of operating room behavior and work. Basic diagnostic and therapeutic methods in abdominal surgery.	2 4
Tuesday	Lecture: Acute abdomen. Characteristics and therapy of circumscribed and diffuse peritonitis. Practice: Significance of parietal peritoneum in the diagnosis of acute abdomen. Position and appearance of a patient with acute abdomen (high/low ileus). Significance of palpation and pain character. Plain abdominal roentgenogram, abdominal ultrasonography.	2 4
Wednesday	Lecture: Surgery of the anterior abdominal wall hernias. Practice: Physical examination of the inguinal canal, penis, testicles. Proper physical examination of hernias in two positions, palpation of the inguinal ring. Introducing of the femoral hernia, its localization, clinical presentation and treatment. Types of inguinal hernias and characteristics of inguino-scrotal hernia and hernia accreta, anulus inguinalis apertus, signs of Littre's hernia. Abdominal X-ray signs of ileus. Umbilical hernia. Characteristics of hernias with wide or narrow hernias ring.	2 4

Thursday	Lecture: Surgery of the stomach, duodenum and spleen.	2
	Practice: Characteristic of gastro-duodenal pain, vomiting and vomiting type, stool color. Palpatory finding in perforated ulcer. Abdominal X-ray signs of pneumoperitoneum, upper gastrointestinal tract radiography (visualization of the ulcer, stenosis or neoplasm). Preparation of the patient for radiological examination. Management of a patient with signs of gastrointestinal haemorrhage. Placement of the nasogastric tube. Digital rectal examination technique. Blakemore tube placement for massive upper GI hemorrhage. Indications and techniques of abdominal puncture. Physical methods of spleen examination.	4
Friday	Lecture: Surgery of small intestine and large bowel	2
	Practice: Indications and technique of enema administration. Types of enemas and their preparation. Darmrohr. Physical signs of ileus and other acute abdominal conditions. Abdominal x-ray signs of ileus (small intestine, large intestine, paralytic ileus). Native and contrast abdominal x-rays. Contrast enema (colonic diverticulosis, malignancy). Recognition of the symptoms and signs of acute appendicitis. Recognition of the symptoms and signs of ileus. Proper enterostomy and colostomy care. CT colonography. Patient preparation protocols for colon-operative procedures. Mesenteric thrombosis and arteriography.	4

Week 3.	Form of teaching (lectures / practice)	hours
Monday	Lecture: Surgery of the rectum and anus	2
	Practice: Physical examinations and interventions in proctology. Instruments and preparation of the patient for rectoscopy, anoscopy, digital rectal examination, the position of the patient during examination. Complications of biopsy and polyp treatments. Recognizing the appearance of various pathological changes. Hemorrhoidal disease, classification, therapy and complications. Thrombotic hemorrhoid treatment. Introduction to the position of principal of hemorrhoidal nodes. Abscess and incisional treatment. Pilonidal sinus (cyst), clinical presentation, early detection of rectal neoplasm.	4
Tuesday	Lecture: Hepatobiliary surgery	2
	Practice: Characteristics of billiary peritonitis and subphrenic abscess and significance of their early diagnosis. Palpatory characteristic of the Courvosier sign, undulatory phenomena, abdominal puncture, laboratory evaluation of patients with liver or bile ducts pathology. T-tube drainage, cholangiography. Appearance of choledochoscope. Patient preparation for abdominal ultrasonography.	4

Wednesday	Lecture: Surgery of the pancreas	2
	Practice: Identifying acute pancreatitis, its clinical implications, treatment and prognosis. Postoperative care following acute pancreatitis, prognosis of possible complications and long-term morbidity. Pancreatic pseudocysts, diagnosis, treatment.	4
Thursday	Lecture: Laparoscopic surgery	2
	Practice: Instruments and equipment for operative laparoscopy, operating room positioning. Advantages of laparoscopic surgery and its possible complications.	4
Friday	Lecture: Abdominal trauma	2
	Practice: General aspect of patients with abdominal trauma (diagnostic-therapeutic protocol). Management of penetrating abdominal stab wounds, foreign bodies, primary wound closure, delayed primary closure, secondary wound closure. Abdominocentesis (paracentesis) and diagnostic peritoneal lavage. Plain abdominal roentgenogram, abdominal ultrasonography in abdominal trauma. Abdominal stab wound exploration technique. Characteristics of injuries to certain abdominal organs.	4

COURSE CONTENT AND SCHEDULE: UROLOGY

Week 4.	Form of teaching (lectures / practice)	hours
Monday	Lecture: Acute urological conditions, renal colic (differential diagnosis), acute scrotum, acute urinary retention, hematuria and its significance. Basics of radiological, endoscopic and urodynamic diagnostics. Urinary tract injuries.	2
	Practice: Urological history taking and physical examination, bimanual palpation of the kidney, diaphanoscopy, scrotum and testicular examination, urinary catheterization, urinary catheter types, digital rectal examination. Recognition of clinical urological conditions by diagnostic and therapeutic modalities. Basic radiological procedures in urology.	4
Tuesday	Lecture: Non-specific and specific urinary infections, sexually transmitted infections; conservative and surgical treatment. Epidemiology, pathogenesis, and pathophysiology of urolithiasis, types of urinary stones, diagnostics, complications, surgical treatment and patient monitoring.	2
	Practice: Basic technical principles and indications for extracorporeal lithotripsy, preparing a patient for ESWL, ESWL under ultrasonic or fluoroscopic control, patient monitoring.	4
Wednesday	Lecture: Urinary tract tumors. Kidney cysts and tumors, adrenal tumors and retroperitoneal mass. Urothelial and bladder tumors. Malignant and benign prostate tumors. Testicular and penile tumors. Obstructive uropathy.	2
	Practice: Urodynamic cabinet (basic technical guidelines for urodynamic studies, necessary equipment, indications and types of urodynamic studies.	4
Thursday	Lecture: Erectile dysfunction, penis surgery, priapism, impotence. Mb. Peyronie: causes, treatment. Neurogenic bladder: classification, etiopathogenesis, importance of urodynamic finding, treatment and method of reevaluation of therapy.	2
	Practice: Bandaging of wounds, remove the stitches; indications for ultrasound examination, percutaneous cystostomy technique, puncture, drainage and sclerosis of renal cysts, percutaneous nephrostomy applications, preparation and performance of prostate biopsies under transrectal ultrasound control.	4
Friday	Lecture: Surgical aspects of kidney transplantation, intraoperative, early and late postoperative complications, patient follow up, kidney rejection due to surgical complications.	2
	Practice: Video projections of the most common minimal invasive operations in urology, recognition of basic urological pathology by radiological findings.	2

	Practice: Practical exam 1	2
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COURSE CONTENT AND SCHEDULE: ANESTESIOLOGY AND REANIMATION

Week 5.	Form of teaching (lectures / practice)	hours
Monday	Lecture: Anesthesiology and reanimation as a specific surgical subdiscipline, history, development, perspective. Principles of anesthesiology, medico-legal responsibility.	2
	Practice: Patient preparation for general anesthesia. Communication with the patient in the operating room (short history and physical examination).	4
Tuesday	Lecture: Fluid and electrolyte balance in surgical patients. Body fluid composition. Definition and classification and changes in tissue water content. Water loss syndrome.	2
	Practice: Anesthesia equipment and instruments used in preparation for general anesthesia. Characteristic of anesthesia machine.	4
Wednesday	Lecture: Pathophysiology, clinical presentation and diagnosis of shock. Types of shock.	2
	Practice: Administration of premedication in children and adults. Preparation of infusion solutions and intravenous anesthetics. Techniques for venipuncture and vascular access procedures.	4
Thursday	Lecture: Anesthesiologic pharmacology. Surgical anesthetic strategy, types of anesthesia and choice of anesthesiologic modality. General anesthesia (intravenous, inhalative, combined). General anesthesia technique. Complications of general anesthesia.	2
	Practice: Anesthesiologic consideration of cardiovascular unstable patients. ECG, hemodynamic parameters, pulse oximetry, gastric tube, urinary catheter.	4

Friday	Lecture: Locoregional anesthesia, infiltrative local anesthesia, regional anesthesia, congestive anesthesia, peridural-epi-dural, spinal anesthesia. Local anesthetics. Application techniques and complications.	2
	Practice: Enteral nutrition applications <i>per sondam</i> - continuous (gravitational method), in bolus and via feeding pumps. Activating feed pumps, calibration of flow rate.	2
	Practice: Partial Exam 1	2

Week 6.	Form of teaching (lectures / practice)	hours
Monday	Lecture: Physiological responses to trauma and surgery. Maintaining homeostasis. Maintenance and monitoring of energy and fluid and electrolyte balance. Disorders of acid-base balance..	2
	Practice: Application of infusion therapy. Application of infusion solutions. Techniques for administering bolus infusion therapy in hypovolemic patients and patients with hemorrhagic shock.	4
Tuesday	Lecture: Advance Life Support - ALS	2
	Practice: Calibration of laboratory findings in cases of hematological, mineral and acid-base disbalance.	4
Wednesday	Lecture: Cardiopulmonary reanimation measures in special conditions: reanimation in late pregnancy, pulmonary embolism (PE), anaphylaxis, status epilepticus, poisoning, drowning, freezing.	2
	Practice: Cardiopulmonary Resuscitation Techniques (ALS).	4
Thursday	Lecture: Postoperative analgesia, analgesia and sedation and pain therapy	2
	Practice: Monitoring and management of the surgical patient in the intensive care unit.	4
Friday	Predavanje: Lecture: Anesthesia in specialist surgical disciplines (cardiac surgery, neurosurgery and thoracic surgery anesthesia). Determination of brain death.	2
	Practice: Proper guidance of anesthetic documentation.	4

COURSE CONTENT AND SCHEDULE: VASCULAR SURGERY, CARDIAC SURGERY

Week 7	Form of teaching (lectures / practice)	hours
Monday	Lecture: Basic hemodynamic physiology and mechanic law in function of blood circulation. Acute occlusive diseases of the arteries (atherothrombosis, thromboembolism, air and fat embolism, mesenteric ischemic syndrome, acute limb ischemia) and principles of surgical management.	2
	Practice: Technical aspects and strategy of the clinical examination of the patient with vascular disease. Peripheral arteries pulse palpation. Auscultation of vascular audible phenomenon's.	4
Tuesday	Lecture: Chronic occlusive arterial disease (atherosclerosis, inflammatory diseases of the arteries, Thoracic outlet syndrome) symptoms and clinical appearance, principles of the conservative and surgical treatment and complications of the treatment (graft failure). Terminal limb ischemia. Diabetic foot. Amputations. Aneurysms of the aorta, peripheral and visceral arteries. Aortic dissection. False aneurysm and AV fistula surgical treatment. Endovascular aortic reconstruction (EVAR).	2
	Practice: Interpretation of the clinical signs & symptoms and diagnostic procedures in vascular surgery. Temporary compressive hemostasis, permanent hemostasis – ligature.	4

Wednesday	<p>Lecture - Vascular surgery: Injuries of the blood vessels. Phlebology, varicose veins, deep vein thrombosis and thrombophlebitis, pulmonary thromboembolism. Portal hypertension. Lymphoedem.</p> <p>Lecture – Cardiac surgery: Hystorical review of the cardiac surgery development. Functional characteristics of the extracorporeal circulation. Coronary artery disease (CAD) patophysiology clinical classification, diagnostics and indications for the bypass surgery, graft choice, complications, outcome and prognosis. Postoperative management of the patient with CAD.</p> <p>Practice - vascular surgery: Types of vascular substituent, choice of the suture and stitching material. Manual practice in creating of the eversive vascular anastomosis on the model (vascular prosthesis) Fogarty catheter handling. Handling of the specific instruments.</p> <p>Practice - Cardiac surgery: Specific approach to the patient at the cardiac surgery department, strategy of clinical examination. Auscultation and detection of the audible phenomenon of the heart and great vessels. Admission of the patient at the operation theatre.</p>	<p>1</p> <p>1</p> <p>2</p> <p>2</p>
Thursday	<p>Lecture: Valvular heart diseases, etiology and pathogenesis (mitral valve stenosis and insufficiency, aortic stenosis and insufficiency, tricuspidal stenosis and insufficiency, stenosis and insufficiency of the pulmonary artery valves) Surgical treatment of the valvular heart disease, choice of the artificial valves (plastics and replacement). Postoperative management, outcome and prognosis. Anticoagulants after valvular surgery. Etiopathogenesis, clinical presentation and therapeutic protocols in treatment of the acute and chronic diseases of the ascendant aorta, aortic arch and descendent part of the thoracic aorta. Surgery and endovascular surgery (TEVAR) of the thoracic aorta.</p> <p>Practice: Mechanical and biological artificial valves, prosthetic rings. Auscultation of the metallic valvular “click”. Preoperative and postoperative hemodynamic assessment. Standards and protocols in perioperative and postoperative chronic anticoagulant therapy. Antibiotics in valvular surgery. General practitioner’s advices for the patients after the valvular surgery (prevention of the endocarditis) .</p> <p>Correct clinical examination of the patient with suspicious aortic dissection. Interpretation of the radiologic signs of the aortic dissection. Choice of the suture material and grafts in cardiac surgery. Phenotype identification and recognizing the signs pathognomonic for the connective tissue diseases in younger patients. Video clip presentation (echocardiography, aortic</p>	<p>3</p> <p>4</p>

	aneurysms and dissection).	
Friday	<p>Lecture: Congenital heart disease (CHD)- anomaly of the heart with increased and reduced pulmonary flow. Obstructive lesions. Most common isolated and complex CHD. Possibilities of palliative and complete surgical treatment of the CHD</p> <p>Practice: Elements of the hemodynamic of the congenital heart anomalies. Explanation of the surgery of the CHD. Demonstration of the temporary perioerative packing. Interpretation of the common radiography in cardiac surgery patient.</p>	<p>2</p> <p>4</p>

COURSE CONTENT & SCHEDULE: PLASTIC AND RECONSTRUCTIVE SURGERY, NEUROSURGERY

Week 8.	Form of teaching (lectures / practice)	hours
Monday	<p>Lecture: Types of free tissue transplants (skin, nerve, cartilage, bone, fatty tissue). Flaps - design principles and types of flaps, hand surgery (open and closed hand injuries, flexural and extensoral, bone, nervous and vascular lesions). Classification and surgery of congenital hand anomalies.</p> <p>Practice: Clinical characteristics of skin transplants, local and free flaps, and the adoption of the principles of their differentiation with the active participation of the students themselves. Physical examination of patients with hand injury. . Understanding the nature of the treatment of wounds, adequate toilets and dressing. Physical examination of patients with burns, local conservative treatment and burn wounds care, strategies for intravenous fluid resuscitation in major burn injuries. Surgical treatment of burns. Physical examination of patient with compressive syndrome (eg. carpal tunnel syndrome).</p>	<p>2</p> <p>4</p>
Tuesday	<p>Lecture: Burns and cold injuries (classification, pathomorphology of severe, extensive burns and cold injuries, conservative and surgical treatment of burns and cold injuries). Skin surgery (surgery of benign and malignant skin tumors, classification, methods of treatment and Sentinel diagnosis of malignant melanoma, surgery of contractures).</p> <p>Practice: Anamnesis and physical examination of the patient (skin tumors, hand injuries, peripheral nerve lesions). Basics of surgical treatment of tumors, Sentinel diagnosis and lymphadenectomy. Physical examination of patients with decubital ulceration, local conservative and surgical treatment of decubital ulceration.</p>	<p>2</p> <p>4</p>

Wednesday	Lecture - Plastic and reconstructive surgery: Decubital ulceration and treatment modalities (etiology, pathophysiology of occurrence, clinical presentation, prevention, conservative and surgical treatment, complications). Aesthetic surgery (otapostasis, facelifting, augmentation and reduction mammoplasty, mastopexy, abdominoplasty, liposuction, functional aesthetic surgery).	1
	Lecture – Neurosurgery: Brain stem stroke and brain death, intracranial hypertension and neurosurgical regulation of the cerebral volume, multi-modal monitoring of a severe neurosurgery patient. Craniocerebral injuries.	1
	Practice - Plastic and reconstructive surgery: Practical use and types of surgical instruments. Practical basics of replacement, revascularization, amputation.	2
	Practice – Neurosurgery: Demonstrating and conducting a general neurosurgical examination of patients in the cerebral coma, after subarachnoidal hemorrhage, in patients with brain tumors, cerebello-pontine angle tumors, pediatric posterior fossa tumors, and skull base tumors, in patients with craniosynostosis, spinal and cranial disraphisms, and adult and pediatric hydrocephalus. Demonstrating the gradation of consciousness disorders by GCS, lesions of the upper and lower motor neurons in neurosurgical patients as well as their significance in setting up an adequate diagnosis. Basics of analytical diagnostic modalities (CT, MsCT, MRI) in neurosurgical patients (active demonstration of the characteristics of individual images in patients with different neurosurgical pathology, and monitoring of multidisciplinary meetings of the neurohirurge and radiologist in which the images are interpreted).	2
Thursday	Lecture - Neurosurgery: Cerebral revascularization, arteriovenous brain malformation, intracranial aneurysms, intracranial hemorrhage. Adult and pediatric intracranial neurosurgical oncology with skull base surgery.	2
	Practice – Neurosurgery: Demonstration and exercise setting a proper anatomical diagnosis of neurosurgical disorders by grouping patients to the level of lesion, pathology and clinical syndromes. Demonstration and implementation of simple invasive procedures (lumbar puncture, continuous lumbar or ventricular drainage, ventriculostomy, surgical treatment of scalp wound).	4

Friday	Lecture: Functional neurosurgery (symptomatic epilepsy surgery, pain surgery, compressive neurovascular syndrome V KN), hydrocephalus, neurosurgical infections.	2
	Practice: Urgent approach to a neuro traumatized patient (severe head injury and spinal injuries) and basics of practical neurosurgical monitoring in a neurointensive care unit. Attendance in neurosurgical operation room and introduction with basic neurosurgical equipment and instruments.	2
	Practice: Practical Exam 2	2

COURSE CONTENT AND SCHEDULE: ORTOPEDIC SURGERY AND TRAUMATOLOGY

Week 9.	Form of teaching (lectures / practice)	hours
Ponedjeljak	Lecture: Introduction to orthopedics and traumatology, significance of joint and hip surgery. A general overview of etiopathogenesis of innate and acquired anomalies in children and adults (osteochondrodysplasia, achondrodysplasia, osteogenesis imperfecta, metabolic diseases, degenerative joint diseases).	2
	Practice: Specifics of medical history and clinical examination in orthopedic surgery and traumatology of the locomotor apparatus. Clinical tests that are important for early detection of congenital and acquired anomalies in children and adults.	4
Tuesday	Lecture: Pathology, classification, diagnosis and treatment of idiopathic congenital scoliosis, postural and congenital kyphosis, Scheuermann's disease. Clinical significance, diagnosis and treatment of spondylitis and degenerative spinal diseases.	2
	Practice: Clinical evaluation of scoliosis and introduction to radiological MacEwen classification of congenital scoliosis, radiographic differentiation of structural and nonstructural curvatures, vertebral rotation measurement by Cobb. Physical examination, radiological examination of patients with degenerative spinal diseases.	4
Wednesday	Lecture: Development of hip and foot disorders, early diagnosis, classification and treatment.	2
	Practice: Determination of Clinical Significant Signs for Developmental hip disorder (Bade's, Ortolanic, Palme's Sign), Radiographic Characteristics, Ultrasound Screening (Graff's Scale Interpretation). Preventive procedures. Introduction to forms of conservative treatment. Identification and differentiation of pes equinovarus, pes metatarsus adductus and talus verticalis.	4

Thursday	Lecture: Clinical presentation, diagnosis, classification and treatment of benign and malignant tumors of bone and soft tissues.	2
	Practice: Physical examination and other diagnostic procedures in the detection of benign and malignant tumors.	4
Friday	Lecture: Specific and non-specific infections, acute and chronic forms, primary and secondary infections in bone joint surgery. Indications for installation of artificial joints. Models, components and tribology of endoprosthesis. Preoperative preparation. Implants Techniques. Early and late postoperative complications.	2
	Practice: Clinical and radiographic preoperative planning of artificial wrist joint. Introduction to the treatment of bone joint infections in hospital conditions.	2
	Practice: Partial exam 2	2

Week 10.	Form of teaching (lectures / practice)	hours
Monday	Lecture: Definition, classification, symptomatology, healing of fractures and joint traumatic luxations. Primary / direct, secondary / indirect healing, complications of healing of the fracture. Pediatric fractures (Salter-Harris classification). Principles of treatment of fractures and disruptions of adults and children (conservative-operative). Contusion, distesion, muscle rupture, muscle hernia. Consequences of soft tissue injury: Volkmann's ischemic contracture, acute subfascial syndrome, postraumatic ossification, microtraumatic disorders, tendinitis, tendovaginitis, bursitis. Rupture of flexor and extension knee and elbow apparatus. Meniscal injuries.	2
	Practice: Clinical and radiographic identification of the upper extremity fracture. Setting indications for conservative or operative treatment. Identifying reducing maneuvers for fractures of the distal radius (<i>Pouteau-Colles, Smith-Goyrand, Barton</i>).	4
Tuesday	Lecture: Clinical presentation, diagnosis, classification, treatment of fractures of shoulder, upper arm, hip, forearm. Traumatic dislocation of acromioclavicular, sternoclavicular, glenohumeral joint (shoulder instability and its causes). Labral lesions. Traumatic elbow dislocation (<i>pronatio dolorosa</i>).	2
	Practice: Clinical and radiographic identification of fractures and dislocations of upper extremity. Shoulder dislocation reduction technique (<i>Hipokrat, Milch, Stimson, scapular manipulation</i>). Elbow and forearm injuries.	4

Wednesday	<p>Lecture: Signifies for determining hand fractures and dislocations and their treatment. Clinical presentation, diagnosis, classification, treatment of hip fractures, thighs, knee, lower leg, ankle joint. Traumatic dislocations of hip knee, cup, upper and lower Legs, Chopart's, Lisfranck's, metatarsophalangeal joints and phalanges.</p>	2
	<p>Practice: Clinical detection of fractures and interpretation of radiographic images in 4 projections for skafoïd bone. Clinical investigation of injuries of hypothenar. Indication for conservative or surgical treatment of metacarpal bone fractures and phalanxes. Introduction to reducing techniques for radiocarpal and lunar dislocations. Performing of Tinel's test. Clinical and radiographic identification of the lower extremity fractures, indication for conservative or operative treatment. Introduction to hip reduction maneuvers. Clinical and radiographic identification of dislocations of the lower extremities. Introduction to reduction maneuvers in hip lutation (<i>Allis-Bohler</i>) and cup dislocation.</p>	4
Thursday	<p>Lecture: Primary clinical examination, diagnosis and categorization of pelvic lesions. Injury-pre-hospital treatment and hospital therapeutic diagnostic protocol. Complications of pelvis fractures: retroperitoneal hematoma, abdominal pre-stage syndrome and their treatment. Pelvic ring injuries associated with lumbosacral lesions.</p>	2
	<p>Practice: Clinical and radiographic visualization of pelvis injuries (examination of the degree of mechanical stability, estimate neurocirculatory status, cephalic and caudal radiography). Initial-transport stabilization of the pelvic fracture. Mastering the technique "pelvic binder".</p>	4
Friday	<p>Lecture: Initial general management of spinal injury.</p>	2
	<p>Practice: Physical examination. Standard and specific radiographic visualization of spinal injuries. Initial pre-hospital treatment. Indications for conservative or operative treatment. Clinical examination, diagnosis, classification of fractures and instability of cervical, thoracic, lumbar and coccygeal spine.</p>	4

COURSE CONTENT AND SCHEDULE: PEDIATRIC SURGERY

Week 11.	Form of teaching (lectures / practice)	hours
Monday	<p>Lecture: Semiology, symptomatology and diagnosis in pediatric surgery. Neonatal surgery. Acute surgical conditions in the neonatal period (necrotizing enterocolitis, meconium ileus). Congenital defects of anterior abdominal wall (omphalocele, gastroschisis, remnants of omphalomesenteric duct).</p> <p>Practice: Physical examination of the abdomen in various diseases and conditions of childhood. Inspection of the anocutaneous region with digito rectal examination in children. Clinical examination and diagnosis of acquired and congenital inguinal hernias of infancy and childhood. Physical examination of newborn abdomen in various diseases and neonatal states. Physical examination and diagnosis of neonatal inguinal hernias, hydroceles and umbilical hernias. Physical examination of newborns with congenital malformations of the anterior abdominal wall (gastroschisis and omphalocele). Physical examination and validation of diagnostic characteristics of the umbilical region in the neonatal period, with practically performing therapeutic procedures (umbilical granulomas different forms of omphalomesenteric remnants).</p>	<p>2</p> <p>4</p>
Tuesday	<p>Lecture: Pediatric urology. Inguinal canal pathology. Cryptorchidism. Varicocele. Acute scrotum. Congenital anomalies of the urogenital tract. Kidney abnormalities. Abnormalities of the pyeloureteric junction. Vesicoureteral reflux. Congenital anomalies of the urethra (hypospadias, epiphysia). Congenital hydrocele.</p> <p>Practice: Physical examination with determining the specificity of pediatric varicocele. Physical examination of recognizing different forms of undescended testes. Practical placement of various types of urinary catheters in children. Recognition and analysis of X-ray characteristics with modalities of treatment of urogenital tract congenital anomalies in children. Physical examination with intubation of urethral prosthesis in congenital genital abnormalities in children (hypospadias and epispadias).</p>	<p>2</p> <p>4</p>
Wednesday	<p>Lecture: Gastrointestinal surgery of childhood. Acute abdomen. Appendicitis. Ileus. Intussusception. Meckel's diverticulum. Congenital anomalies of the gastrointestinal tract. Esophageal atresia. Atresias of small and large bowel. Congenital megacolon (m. Hirschsprung). Anorectal malformations. Biliary atresia.</p> <p>Practice: Manual intubation of natural body openings with different probes and prostheses (nasogastric tube, aspiration probe, digital rectal examination). Recognition and analysis of X-ray characteristics of acute abdominal conditions of infancy and</p>	<p>2</p> <p>4</p>

	childhood, with definitions of treatment modalities. Recognition and analysis of x-ray characteristics of acute congenital and acquired abdominal conditions in neonatal period (esophageal atresia, congenital diaphragmatic hernia, small and large intestine atresia, rectal atresia, neonatal necrotizing enterocolitis). Physical examination of newborns with congenital malformations of the anterior abdominal wall (gastroschisis and omphalocele).	
Thursday	Lecture: Trauma and burns in childhood. Soft tissue injuries. Open and blunt abdominal trauma with or without injury of solid and hollow organs. Burns - conservative and surgical treatment.	2
	Practice: Practical introduction to the characteristics of surgical wound treatment in children. Estimation of depth and extensiveness of pediatric burns.	4
Friday	Lecture: Solid malignant and benign tumors in childhood. (neuroblastoma, nephroblastoma, rhabdomyosarcoma, hepatoblastoma, teratoma).	2
	Practice: Physical abdominal examination with X-ray and specific laboratory characteristics and markers of the most common solid malignant abdominal, thoracic and retroperitoneal tumor in childhood.	4

COURSE CONTENT AND SCHEDULE: CHEST SURGERY

Week 12.	Form of teaching (lectures / practice)	hours
Monday	<p>Lecture: Semiology, symptomatology and diagnosis in thoracic surgery. Thoracic surgical aspects of the most common lung diseases (lung cancer, benign lung tumors, pulmonary abscess, bronchiectasis, pulmonary atelectasis, pulmonary echinococcosis).</p> <p>Practice: Physical examination of the thorax in a thoracosurgical patient (examination of the chest at rest, examination of the chest during breathing, palpation of respiratory expansion, palpation of tactile fremitus, palpation of apex beat of heart, pulmonary auscultation, auscultation of the heart). Inspection and palpation of the neck and axilla. Ultrasonic examination of the neck. Preoperative preparation of a thoracosurgical patient.</p>	<p>2</p> <p>4</p>
Tuesday	<p>Lecture: Thoracosurgical aspects of the most common pleural diseases (pleural effusion, pleural empyema, spontaneous pneumothorax, tensile hypertensive pneumothorax, pleural mesothelioma). Surgery of the chest wall (breast cancers, Inflammatory diseases of the chest, congenital developmental abnormalities of the chest (pectus excavatum and pectus carinatum).</p> <p>Practice: Inspection and palpation of the neck and axilla. Ultrasonic examination of the neck. Preoperative preparation of a thoracosurgical patient.</p>	<p>2</p> <p>4</p>
Wednesday	<p>Lecture: Injuries of the chest wall. Closed injuries of thorax (rib fractures, contusions of the chest, complications caused by rib fractures, fractures of the sternum, flail chest, hemothorax, pulmonary contusion, rupture of the large airways). Open chest injuries (open pneumothorax).</p> <p>Practice: Adoption of therapeutic skills. Toracocentesis (pleural puncture), thoracic drainage, removal of chest drainage tube.</p>	<p>3</p> <p>4</p>
Thursday	<p>Predavanje: Najčešća patološka stanja traheje i bronha od hirurškog interesa. Strana tijela u traheo-bronhalnom stablu. Najčešća patološka stanja medijastinuma od hirurškog interesa (tumori medijastinuma, sindrom gornje šuplje vene, pneumomedijastinum)</p> <p>Vježbe: Interpretacija grudnih radiograma (najčešća torakohirurška oboljenja). Kontrastne radiološke metode, CT, NMR / MRI, scintigrafija (skelet, pluća), ultrazvučne pretrage, SPECT.</p>	<p>2</p> <p>4</p>

Friday	Lecture: Surgical diaphragm diseases (congenital diaphragmatic hernia, diaphragm rupture, diaphragmatic eventration). VATS-video assisted thoracic surgery.	2
	Practice: Specific thoracic surgical instruments.	4

Week 13.	Form of teaching (lectures / practice)	hours
Monday	Practice: Triage	2
	Practice: Practical exam 3	3
	Lecture: Partial exam 3	3
Week 17-18	Final exam (regular term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September term)	

Code: MFSE 0902	Course title: OTORHINOLARYNGOLOGY AND MAXILLOFACIAL SURGERY		
Level: clinical	Study year: V	Semester: IX	ECTS: 4
Status: obligatory	Total contact hours: 60		
Prerequisites:	According to Study Regulation		
Lecturers: Professor Adnan Kapidžić, MD PhD; Arslanagić Rusmira, MD PhD; Arnautović Melika, MD			
1. Overall aim	The overall aim of the Otorhinolaryngology and Maxillofacial Surgery Course is to introduce students to the clinical symptoms, diagnostic procedures and therapeutic possibilities of ear, throat, nose and neck region.		
2. Course contents	<p>The following topics will be covered within Modules:</p> <p>Module 1. Introduction to otorhinolaryngology and maxillofacial surgery The aim of this module is to introduce a student with historical development of otorhinolaryngology and a link with other medical areas.</p> <p>Module 2. Ear diseases The aim of this module is to introduce a student with embryology, surgical anatomy, inflammation, tumors, diagnosis, and methods of treating ear diseases.</p> <p>Module 3. Audiology and vestibulology The purpose of this module is to learn the diagnosis of hearing impairment and ways of testing the vertigo and balance disorders.</p> <p>Module 4. Diseases of the nose and paranasal sinuses The aim of this module is to introduce a student with nasal and sinus disorders, diagnostic methods, and focus on sinusogenic complications, and therapeutic methods of treating these diseases.</p> <p>Module 5. Diseases of the oral cavity, pharynx with tonsils and salivary glands The purpose of this module is to introduce students with diseases of the oral cavity, throat with tonsils, and the indications and contraindications for tonsillectomy and adenoidectomy, as well as diagnostic methods and therapeutic options.</p> <p>Module 6. Diseases of the facial nerve, with paresis or paralysis The aim of this module is to introduce a student with the causes of parasite or paralysis of the nerve, diagnostic test methods, and the method of treatment with operative methods from the aspect of otorhinolaryngologists and maxillofacial surgeons.</p> <p>Module 7. Injuries and fractures of the facial bones The aim of this module is to introduce the student with the types of traumatic injuries of the face, both the injuries of the middle mass of the</p>		

	<p>face, the frontal sinus and fractures of the base of the skull.</p> <p>Module 8. Diseases of the larynx and trachea The aim of this module is to introduce a student with all larynx and trachea diseases, methods of their diagnosis and therapeutic possibilities for treating them.</p> <p>Module 9. Phoniatics The purpose of this module is to introduce students with all diagnostic and therapeutic possibilities in the field of phoniatics.</p> <p>Module 10. Diseases of the thyroid gland The aim of this module is to introduce a student from the otorhinolaryngological aspect to thyroid gland diseases and, together with nuclear medicine specialists, to carry out the necessary diagnostic methods, and to choose the most appropriate ways of treatment. In the field of esophagus, together with gastroenterologists and abdominal surgeons, choose appropriate diagnostic procedures and therapeutic methods of treatment.</p>
3. Learning outcomes	<p>Students will acquire knowledge necessary for recognizing basic symptoms and clinical manifestation of otorhinolaryngology and maxillofacial surgery diseases. They will be able to examine a patient, plan out diagnostic procedures and appropriate treatment.</p> <p><i>Through the lectures students will gain the following knowledge:</i></p> <ol style="list-style-type: none"> 1. Know historical development of otorhinolaryngology and maxillofacial surgery, as well as their relation to other branches of medicine; 2. Learn surgical anatomy, inflammations, tumours, diagnostics and ways of treatment ear diseases; 3. Develop basic understanding for audiology and vestibulogy; 4. Learn about surgical anatomy, inflammations, tumors, diagnostics and ways of treatment of nose and paranasal sinuses; 5. Know diseases of the oral cavity, pharynx with tonsils, indication and contraindications for adenoidectomy and tonsillectomy, as well as their complications, diagnostic methods and therapeutic possibilities; 6. Learn about paresis or paralysis of the facial nerve, diagnostic methods and surgical treatment; 7. Understand injuries of soft tissue structures, facial bones, injuries of the maxilla, frontal sinus and skull base fractures; 8. Know diseases of the larynx and trachea, methods of their therapeutic possibilities of treating the above; 9. Obtain knowledge about diagnostic and therapeutic possibilities in phoniatics; 10. Understand conditions of the thyroid gland and esophagus, specific ways of interdisciplinary diagnostics and treatment.

	<p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"> -Taking anamnesis and physical examination -Examining cranial nerves, especially the 5th, 7th and 8th nerve -Examining spontaneous and positional nystagmus -Systematic approach to a patient with acute problems -Interpreting ortostatic and dynamostatic tests -Correct and adequate treatment of diseases within the Modules <ol style="list-style-type: none"> 1. Diagnostic and therapeutic possibilities in otology: <ul style="list-style-type: none"> -Otomicroscopy and its diagnostic and therapeutic possibilities -Radiology tests related to the ear and its complications -Audiology and vestibulology -Operative procedures in otology 2. Diagnostic and therapeutic possibilities in rhinology and sinus diseases: <ul style="list-style-type: none"> -Swab test -Aspiration therapy of nose and sinuses -Posterior and anterior nose packing -Nasal and sinus endoscopy -Functional endoscopic sinus surgery abilities (FESS) -Operative methods (septoplasty, rhinoseptoplasty, sinus surgery) 3. Diagnostic and therapeutic methods of treating diseases of the oral cavity, pharynx, salivary glands and tonsils: <ul style="list-style-type: none"> -Throat swab -Digital palpation of epipharynx -Tonsil and adenoid surgery and their complications -Diagnostic and therapeutic possibilities in salivary gland disease -Recognition of diseases and complications in dental pathology -Recognition and early detection of benign and malignant diseases and possibilities in their treatment 4. Diagnostic procedures and treatment of pharynx and trachea diseases: <ul style="list-style-type: none"> - Indirect laryngoscopy and directoscopy, microlaryngoscopy and their diagnostic and therapeutic possibilities; - Urgent tracheotomy in local and general anesthesia; - Recognition of paresis and paralysis of vocal cords; - Recognition and early detection of benign and malignant tumours of larynx and trachea. 5. Familiarize with the possibilities of phoniatics and its importance in laryngology and with importance of speech therapists in treating speech malfunctions 6. Diagnostic procedures in audiology and vestibulology, as well as, the importance of early diagnosis of hearing malfunction for proper speech development.
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4. Teaching methods	Lectures: 20 hours Practice: 40 hours
5. Methods of Knowledge Assessment	<p>The assessment of student's knowledge will be continuously performed during the semester and within the Final examination.</p> <p>Continuous Knowledge Assessment The continuous knowledge assessment will be carried out through the Partial Exam 1 and Partial Exam 2</p> <p>The Partial Exam 1 The partial exam 1 is consisted of practical and written test.</p> <p>The Practical Test 1 The practical test 1 will be assessment of acquired skills in taking anamnesis, i.e., heteroanamnesis and physical examination of a patient determined through Modules 1-7. The evaluation of acquired skills is carried out by completed tasks previously determined in the check-list. Each task brings corresponding number of points. The total number of points that a student may earn within this part of continuous knowledge checking is 20. A student must acquire at least 11 points to pass his/her Practical test 1. The final grade will be established by adding other points.</p> <p>The Written Test 1 The written test 1 is the written test with 30 MCQ, and will check knowledge acquired through Modules 1-7. Each correct answer brings 1 point, i.e., total 30 points. This test will be successfully passed after the student acquires at least 17 points. The acquired number of points will be added to other points to get the final grade.</p> <p>In case a student fail to pass Partial exam, he/she must take it at the Final exam.</p> <p>The Partial Exam 2 The partial exam 1 is consisted of practical and written test.</p> <p>The Practical Test 2 The practical test 2 is checking of acquired skills in taking anamnesis and ENT and maxillofacial examination of a patient through the Modules 8,9,10. The evaluation of acquired skills is carried out by completed tasks previously determined in the check-list. Each task in the check-list brings corresponding number of points.</p> <p>The Written Test 2 The written test 2 is the test with 30 MCQ, and will check knowledge acquired through Modules 8-15. Each correct answer brings 1 point and maximal number of acquired points is 30. This test is successfully completed after a student acquired at least 17 points. The acquired number of points will be added to other points to get the final grade.</p>

	<p>The Final Examination</p> <p>In case a student failed to pass practical and partial tests during a semester, he/she is obliged to take the final examination. The condition for taking the written part of the final examination is previously passed the practical test.</p> <p>In case a student failed to pass both practical tests during continuously performed assessment of knowledges and skills, then the practical test as a part of final examination is understood as the evaluation of acquired skills through the two check-lists, by which 40 points may be got. The practical test as the part of the Final Examination will be regarded as passed, if a student gets at least 11 points on each check-list (total 22 points). The condition for taking the written part of the Final Examination is: passed practical part of the Final Examination.</p> <p>In case a student failed to pass only the written part of the Partial Test 1 during the semester, the Final Examination is the test of 30 MCQ, by which the acquired knowledges will be checked through Modules 1-7. Each correct answer assumes 1 point, i.e., total of 30 points. Accordingly it is required to get at least 17 points to past the test. The points got will be added to the other points to form the final grade.</p> <p>In case a student failed to pass only the written test of the Partial Test 2 during a semester, the written part of the Final Examination is the test of 30 MCQ, by which the acquired knowledges will be checked through Modules 8-15. Each correct answer assumes 1 point, i.e., the total of 30 points. Accordingly it is required to get at least 17 points to past the test. The points got will be added to the other points to form the final grade.</p> <p>If a student failed to pass neither of obligatory partial tests, the written part of the Final Examination has 60 questions, through which a student may get maximally 60 points. Accordingly, a student must get 33 points to pass this part of the test. The number of points got will be added to other points to form the final grade.</p> <p>Repeated and Remedial Exam</p> <p>The above exams will be performed as to previously defined criteria of the Final Examination.</p> <p>The Final Grade Forming</p> <p>The final grade will be formed when all obtained points are added as to each applied method of knowledges assessment used:</p>
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	Grade	No. of points	Description of grade
	10 (A)	95-100	Exceptional results with insignificant errors
	9 (B)	85-94	Above average, with some errors
	8 (C)	75-84	Average with visible errors
	7 (D)	65-74	Generally good but with significant errors
	6 (E)	55-64	Satisfy minimum criteria
	5 (F, FX)	< 55	Do not satisfy minimum criteria
6. Literature	Obligatory: <ul style="list-style-type: none"> – Baley JB, Johnson JT, Rosen CA. Bailey's Head and Neck Surgery. Lippincott Williams and Wilkins; 2013. Additional: <ul style="list-style-type: none"> – Corbridge RG, Stevenson N. Oxford Handbook of ENT and Head and Neck Surgery. Oxford Press; 2010. – Lee KJ. Essential Otolaryngology: Head and Neck Surgery. McGraw-Hill Professional; 2012. – Wormald PJ. Endoscopic Sinus Surgery: Anatomy, Tree-Dimensional Reconstruction and Surgical Technique; 2012. – Cohen JL, Clayman GL. Atlas of Head and Neck Surgery: Expert Consult-Online and Print, Saunders; 1 Har/Pcs edition; 2011. 		
7. Remark	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheater in CCUS. The exercises will be realized at the Clinic for Otorhinolaryngology in the Clinical Center of the University of Sarajevo. All forms of instruction are compulsory. Exercises can be attended only by students who have a valid sanitary booklet and a proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is each working day pre-reserved with the teaching staff.</p>		

PLAN OF SUBJECT: OTORHINOLARYNGOLOGY

Week 13.	Form of teaching	Number of hours
Tuesday	Lectures: Ear-embryology, surgical anatomy, function and methods of examination with audiology. Pathology of outer ear- injuries, foreign bodies, infections and tumours.	2
	Exercises: Audiology with balance disorder assessment (vestibular testing): taking anamnesis, complete ENT examination with special accent at otoscopy, opening of audiology medical history; audiometry, otoacoustic emission (OAE) with newborn hearing screening, ABR, tympanometry with stapedius reflex; performance of orthostatic and dynamostatic test, testing of spontaneous and positional nystagmus with Frenzel goggles, calorie test and rotary-chair testing.	4
Wednesday	Lectures: Acute and chronic middle ear disease. Pathology of inner ear. Injuries and tumours of middle and inner ear.	2
	Exercises: Introductory exercises (ENT workplace with required instruments, types of examinations: anterior and posterior rhinoscopy, oropharyngoscopy, indirect laryngoscopy, otoscopy, neck palpation). Taking anamnestic data for medical history of ENT patient. Otoscopy. Otomicroscopy (diagnostic and therapeutic significance).	4
Thursday	Lectures: Nose and paranasal cavities-embryology, anatomy, physiology, methods of examination. Nose deformity, injuries of the nose and paranasal cavities (sinuses), nosebleed.	2
	Exercises: Examination of the nose and sinuses (taking anamnesis regarding nose and sinuses diseases, anterior and posterior rhinoscopy, radiologic procedures from this area with presentation of X-ray of nasal bones, anterior and posterior nasal packing).	4
Friday	Lectures: Acute and chronic inflammation of the nose and sinuses. Foreign bodies of the nose and sinuses. Tumours of the nose and sinuses.	2
	Exercises: X-ray of paranasal sinuses, CT scan of the paranasal sinuses. Extraction of foreign bodies from the nose. Significance of the sinusoscopy. Reposition of nasal bones and other methods of treatment of nose and sinuses diseases.	4
Week 14.	Form of teaching	Number of hours
Monday	Lectures: Oral cavity, pharynx with tonsils-embryology, anatomy, physiology, examination procedures. Acute and chronic inflammation of pharynx and tonsils. Indications and contraindications for tonsillectomy and adenoidectomy. Tumours of	2

	<p>the oral cavity, pharynx and tonsils.</p> <p>Exercises: Examination of the oral cavity, pharynx and tonsils. Taking basic anamnestic data for oral cavity, pharynx and tonsils diseases. Digital palpation of the adenoids, hypopharyngography, significance of CT scan and MRI scan in diagnostics of tumours and infective complications from these areas. Indications and contraindications for tonsillectomy and adenoidectomy. Presentation of the tonsillectomy under general anesthesia.</p>	4
Tuesday	<p>Lectures: Partial exam 1</p> <p>Exercises: Practical exam 1</p>	<p>1</p> <p>4</p>
Wednesday	<p>Lectures: Larynx and trachea-embryology, surgical anatomy, physiology and examination procedures. Foreign bodies of larynx and trachea. Tumours of the larynx.</p> <p>Exercises: Taking anamnestic data and types of examinations of the larynx (indirect laryngoscopy and directoscopy- direct laryngoscopy). Radiologic examination of the larynx and microlaryngoscopy procedure as diagnostic and therapeutic method. Indication for tracheotomy, types of tracheotomy, coniotomy, tracheotomy (urgent tracheotomy with local anesthesia and previously planned tracheotomy under general anesthesia).</p>	<p>2</p> <p>4</p>
Thursday	<p>Lectures: Esophagus- anatomy, physiology, examination procedures, foreign bodies, caustic and corrosive injuries of the esophagus, inflammations and tumours.</p> <p>Injuries and fractures of the facial bones. Le Fort fracture of the skull (classic transfacial fracture of the midface). Frontal sinus fractures. Skull base fractures.</p> <p>Exercises: Taking anamnestic data for diseases of esophagus, trachea and bronchus. Radiologic examination of the esophagus, trachea and bronchus, CT scan diagnostic. Esophagoscopy in local and general anesthesia in diagnostic and therapeutic purposes. Bronchoscopy and extraction of foreign bodies from trachea and bronchus.</p> <p>Taking anamnesis or heteroanamnesis about the way in which traumatic injuries occur, assessment of the state of consciousness, assessment of the urgency of diagnostic and therapeutic procedures. Diagnostic procedures (X-ray of facial bones, CT scan of skull). Presentation of teamwork approach in solving injuries of the midface, frontal sinus and skull base by otorhinolaryngologist, maxillofacial surgeon, neurosurgeon and ophthalmologist. Assessment of the state of patients with above mentioned injuries in postoperative period, if necessary, some additional diagnostic or therapeutic procedure.</p>	<p>1</p> <p>1</p> <p>4</p>

Friday	<p>Lectures: Facial nerve palsy. Trigeminal neuralgia. Orbital fractures. Diseases of salivary glands. Diseases of thyroid gland. Neck cysts. Phoniatics.</p> <p>Exercises : Taking anamnesis about the way in which traumatic injuries occur. Diagnostic: X-rays and CT scans of the skull. Teamwork approach in solving injuries of the face by otorhinolaryngologist, maxillofacial surgeon, neurosurgeon and ophthalmologist. Postoperative monitoring of the injuries mentioned above.</p> <p>Taking anamnesis about how long trigeminal neuralgia lasts and about its possible repeating, teamwork approach in assessment of diagnostic and therapeutic procedures by otorhinolaryngologist, maxillofacial surgeon, neurosurgeon and ophthalmologist.</p>	<p>4</p> <p>2</p>
Week 15.	Form of teaching	Number of hours
Monday	<p>Exercise: Diagnostic and treatment of patients with facial nerve palsy, correct assessment if it is central or peripheral facial nerve palsy, correct assessment in whose competition is further diagnostic and treatment (neurologist or otorhinolaryngologist). Diagnostic and treatment of patients with diseases of the salivary glands (infective diseases, sialolithiasis, autoimmune diseases, determination of diagnostic and therapeutic plan). Treatment of patients with thyroid gland diseases, teamwork with nuclear medicine specialist (laboratory findings, thyroid function tests (hormones), ultrasound scan and scintigraphy of thyroid gland). Determination of surgical or conservative treatment.</p> <p>Partial exam 2</p> <p>Practical exam 2</p>	<p>2</p> <p>1</p> <p>4</p>
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0904	Course title: BENIGN PROSTATIC HYPERPLASIA		
Level: clinical	Study year: V	Semestar: IX	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associated Professor Mustafa Hiroš, MD PhD; Professor Damir Aganović, MD PhD			
1. Overall aim	The overall aim of the Benign Prostatic Hyperplasia course is to expand knowledge on benign prostatic hyperplasia, clinical presentation, diagnosis and multiple treatment modalities.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. Benign prostatic hyperplasia (BPH) Through the Module the student will adopt the knowledge about: prostata anatomy, definition and epidemiology of BPH, BPH progression, natural history of BPH, BPH Symptom Index Questionnaire of American Urological Association, risk of associations between BPH and prostate cancer, diagnosis and assesment of BPH.</p> <p>Module 2. Medical management of benign prostatic hyperplasia The aim of this Module is to introduce student with the different modality of benign prostatic hyperplasia medical treatment (phytotherapy, alfa blockers, 5 alfa reductase inhibitors, anticholinergics, PDE5 – inhibitors, combination therapy)</p> <p>Module 3. Treatment options of benign prostatic hyperplasia The aim of this Module is to introduce student with the surgery interventional treatment (open prostatectomy, laparoscopic and robotic simple prostatectomy. transurethral resection of the prostate – TURP, transurethral incision of the prostate – TUIP, transurethral microwave procedures –TUMT, transurethral needle ablation – TUNA, as wll as with water-induced thermotherapy, high-intensity focused ultrasound –HIFU, prostate laser surgery, Thulium, Diode laser.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through the lectures the students will gain following knowledge:</i></p> <ol style="list-style-type: none">1. Know that the benign prostatic hyperplasia is used synonymously with "prostatism" and "bladder outlet obstruction", implying that obstruction to urinary outflow, secondary to prostatic enlargement, is the cause of such symptoms.2. Learn three distinct zones of prostate: central zone, peripheral zone (where CaP develops) and transition zone(where BPH develops),3. Comprehend that the growth and development of the BPH is influenced by the male hormone testosterone, metabolite dihydrotestosterone, race, environment, diet and genetics.4. Know that BPH symptoms can be quantified with: the International Prostate Symptom Score (IPSS), digital rectal Examination (DRE), PSA to estimate the risk of CaP, uroflowmetry for severity of		

	<p>obstruction, post-void residual volume voiding efficiency, urodynamics may be helpful in selected cases, PCA3 testing or prostate biopsy may be required to rule out prostate cancer</p> <p>5. Learn that medical management of BPH should be regarded as an option and it is contents of use alfa blockers for rapid improvement of BPH related symptoms.</p> <p>6. Learn about surgical treatment options, classic and minimal invasive options.</p> <p>Through the practical work students will acquire following skills:</p> <p><i>Skills that should be practically performed (knows how to do them):</i></p> <ul style="list-style-type: none"> - Taking detailed history and symptom assessment (IPSS) - Physical examination - Digo-rectal examination - Interpretation of serum prostate specific antigen (PSA) - Urine analysis, urea, creatinine <p><i>Skills to know (know how and when):</i></p> <ul style="list-style-type: none"> - Uroflowmetry - Measurement of residual urine - Transrectal ultrasound (TRUS)
4. Teaching methods	<p>Lectures: 10 hours, Practical work: 10 hours</p>
5. Method of knowledge assessment and examination	<p>Student knowledge checking will be performed continuously during the semester and as a Final exam.</p> <p>Continuous knowledge testing Knowledge checking will be performed continuously during the scheduled lessons and exercises, as well as on Practical, Partial and Final Exam.</p> <p>Practical Exam Practical exam involves assessing the acquired skills and acquired knowledge processed through all modules. Evaluation is performed through the fulfillment of the tasks defined in the <i>checklists</i>. The <i>checklist</i> consists of a total of five tasks, of which three clinical vignettes, one assignment from each module. Each task carries a total of 6 points. Student total may win a maximum of 30 points. To qualify as a passed Practical exam, a student must score at least 17 points. The awarded number of points is added to the other points when forming the final grade.</p> <p>Partial exam Partial exam implies one clinical vignette or <i>case report</i>. The student gets a total of 4 <i>case reports</i> with defined tasks. Tasks are problem-oriented. The total student can win a maximum of 20 points or 5 points from each <i>Case report</i>. To qualify as a passed an exam, a student must earn at least 11 points.</p> <p>Final exam Final exam implies an oral examination of knowledge on the basis of 10</p>

	<p>selected exam questions printed on the exam card.</p> <p>The number of questions on the card is sorted by domains as follows:</p> <ul style="list-style-type: none">- Module 1 - 2 questions- Module 2 - 2 questions- Module 3 - 2 questions- Module 4 - 2 questions- Module 5 - 2 questions <p>Each correct answer brings 1 to 5 points.</p> <p>The maximum number of points a candidate can win on Final exam is 50 (fifty).To qualify as a passed an exam, the candidate must win at least 28 points. The number of points awarded is added to the other points and forms the final grade.</p> <p>The condition for taking the oral part of the Final exam has been previously passed Practical exam. If a student has not passed a Practical exam, checking the acquired knowledge and skills will be done within the first part of Final exam.</p> <p>Repeated and Remedial exam</p> <p>Repeated and Remedial exams are conducted according to the previously defined criteria of the Final exam.</p> <p>Creating a final grade</p> <p>The total number of points earned, obtained through all forms of knowledge testing, forms the final grade:</p> <table><tr><th><i>Grade</i></th><th><i>Number of points</i></th><th><i>Description of rating</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some mistake</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good but with significant disadvantages</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	<i>Grade</i>	<i>Number of points</i>	<i>Description of rating</i>	10 (A)	95-100	exceptional success without mistakes or with minor errors	9 (B)	85-94	above the average, with some mistake	8 (C)	75-84	average, with noticeable mistakes	7 (D)	65-74	generally good but with significant disadvantages	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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6. Literature	<p>Obligitory:</p> <ul style="list-style-type: none">– European Association of 'Urology, EAU Guidelines; 2018. www.uroweb.org– American Urological Association, AUA, Guidelines; 2018.– Benign Prostatic Hyperplasia; www.auanet.org/education– Bachmann A, de la Rosette J. Benign Prostatic Hyperplasia and Lower Urinary Tract Symptoms in Men. Oxford University Press; 2012. <p>Additional:</p> <ul style="list-style-type: none">– McDougal W, Wein A, Kavoussi L, Novick A, Partin A, Craig Peters C, Ramchandani P. Campbell-Walsh Urology, 10th edition Review (1st ed.).																					

	<p>Saunders; 2011.</p> <p>– Kirby RS, Peter Gilling PJ. Fast Facts: Benign Prostatic Hyperplasia (7th ed). Health Press; 2011.</p>
7. Note	<p>All forms of teaching are mandatory.</p> <p>The number of students per assistant can be up to six. Exercises at the Clinic for Urology CCU Sarajevo can be attended by students with a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations for students will be held from 13 to 14 hours each day, with a prior announcement to the teaching professor by e-mail: mustafa.hiros@mf.unsa.ba</p>

PLAN OF SUBJECT: BENIGN PROSTATIC HYPERPLASIA

Week 15.	Form of teaching	Hours
Tuesday	<p>Lecture: Prostata anatomy. Definition of Benign prostatic hyperplasia (BPH), Benign prostatic enlargement (BPE), Bladder outlet obstruction (BOO), Benign prostatic obstruction (BPO). Classification of lower urinary tract symptoms (LUTS). Epidemiology of BPH. Prevalence of BPH on the basis of histological criteria (autopsy prevalence), or clinical criteria (clinical prevalence). BPH progression, natural history of BPH (untreated). Impact of natural history of BPH on LUTS.</p> <p>Exercises: Presentation the patients with the benign prostatic hyperplasia and symptoms of bladder outlet obstruction as a consequence of prostatic enlargement. Learn three distinct zones of prostate: central zone, peripheral zone (where prostate cancer develops) and transition zone (where BPH develops).</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lectures: BPH Symptom Index Questionnaire of American Urological Association. Risk of associations between BPH and prostate cancer. BPH, PSA, and the risk of having prostate cancer (PCA). Associations between BPH and prostate cancer. The role of metabolic syndrome and chr. inflammation in BPH. Erectile dysfunction associated with LUTS and BPH. Diagnosis and assesment of BPH – diagnostic strateg(recomended in all patients, in selected patients, not recomended, but may be in selected patients).</p> <p>Exercises: Analyze the presence of risk factors for the development of BPH. Quantify BPH symptoms with the International Prostate Symptom Score (IPSS). Digital rectal Examination (DRE). Analyze differences in PSA levels in patients with prostate cancer and patients with benign prostatic hyperplasia. Prostate biopsy.</p>	<p>3</p> <p>2</p>

Thursday	Lectures: Management of benign prostatic hyperplasia (medical management, options of surgical treatment of benign prostatic hyperplasia: open prostatectomy, laparoscopic and robotic simple prostatectomy, transurethral resection of the prostate (TURP);transurethral incision of the prostate (TUIP); transurethral microwave procedures (TUMT); transurethral needle ablation (TUNA); Water-induced thermotherapy; High-intensity focused ultrasound (HIFU); Prostate laser surgery (Nd:YAG, Greenlight, Holmium,Thulium, Diode laser.	2
	Exercises: Medical management ofBPH for rapid improvement of BPH related symptoms. Surgical treatment options, classic and minimal invasive options.Attending an operative treatment of BPH.	3
Friday	Practical exam	2
	Partial exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0906	Course title: HAND TRAUMA		
Level: clinical	Study year: 5	Semester: IX	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the study regulation		
Lecturers: Professor Sanela Salihagic, MD PhD; Malik Jakirlic, MD MSc; Vanis Dujso, MD MSc			
1. Overall aims	The overall aim of the Hand Trauma course is acquiring of diagnostic and surgical modalities of hand trauma, which is a significant part of traumatology and plastic reconstructive surgery, introduction of the main principles of functional examination and appropriate selection of the very broad spectrum of available operative techniques with proper and correct indications.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. General principles of the hand trauma, clinical assessment Anatomical and functional structure of the hand The aim of Module is to introduce student with anatomic structures and its specific function, proper examination of the hand injury and adequate diagnostic and therapeutic selection, classification of the hand injuries with etiological factors, available diagnostic modalities with proper indications and surgical modalities for primary and secondary reconstruction.</p> <p>Module 2. Bone and joint injuries The aim of Module is to introduce student to the classification of the bone and joint injuries, diagnostic modalities, main principles and indications for conservative and operative reposition, available osteosynthetic material, as well as with the principles of the postoperative follow-up.</p> <p>Module 3. Tendon injuries The aim of Module is to introduce student to the classification of the flexor and extensor tendon injuries according to level of injury, the characteristics of the functional failure associated with specific type of tendon and the principles of the primary and secondary tendon reparation (selection of conservative and operative modalities).</p> <p>Module 4. Nerve injuries of the hand The aim of Module is to introduce student to classification of the peripheral nerve injuries,the characteristic of the functional failure associated with specific nerve injury, the extent of the nerve injury correlated with etiologic factor and selected surgical modality and indication and classification for surgical reparation of peripheral nerves.</p> <p>Module 5. Microsurgical reconstruction of the hand The aim of Module is to introduce student to the main principles of</p>		

	<p>microsurgery, classification of the hand injuries with indications for microsurgical reconstruction and the types of microsurgical reconstruction.</p> <p>Available free microvascular flap for reparation of traumatic defects.</p> <p>Module 6. Guidelines of the algorithmic assesment of the hand injury</p> <p>The aim of Module is to introduce student to evaluation of correlation between functional failure of specific anatomical structure with proper treatment modality.</p> <p>Through the lectures students <i>will gain following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Define general terms of the hand trauma; explain main principles of the clinical examination, diagnostic and surgical modalities. 2. Explain different types of the osteosynthesis of hand bones. 3. Learn the principles of tendon and nerve reconstruction, classifications of the nerve and tendon injuries. Verdan`s classifications of the tendon systems of the hand, correlation between the level of the injury and proper selection of the operative technique; 4. Introduction to the basic principles of microsurgery and physical therapy after bone, joint, tendon and neurovascular injuries of the hand.
4. Teaching methods	<p>Lectures: 5 h</p> <p>Practical work:15 h</p>
5. Method of knowledge assesment and examination	<p>Assessment of student's knowledge shall be done continuously, which includes Practical exam and Partial exam.</p> <p>Practical Exam</p> <p>A Practical Exam implies an assessment of the acquired skills through Modules 1-5. The skill test will be performed through pre-defined tasks on the check list. The maximum number of credits awarded on a Practical Exam is 40. The minimum number of credits for a successfully passed practical exam is 22. These points are added to the others when forming the final grade.</p> <p>Partial Exam</p> <p>The partial exam is a test of knowledge, consisting of 30 Multiple Choice (MCQ) questions. Each correct answer on the test carries 2 points. The minimum number of points earned for a successful test is 33 points, maximum 60.</p> <p>Final exam</p> <p>If a student has not passed the practical part of the exam at the end of the course, the evaluation of the acquired skills is done on the Final exam by completing the tasks defined in the check list. Each task carries the appropriate number of points. The maximum number of points a student can win is 40. To get a practical exam passed, the student must win at</p>

	<p>least 22 points. The awarded number of points is added to the other points when forming the final grade.</p> <p>If a student has not passed the Partial exam at the end of the course, the Final exam will be a written test with 30 MCQ questions. Each correct answer has 2 points, which amounts to a maximum of 60 points. To qualify for the exam, you must win at least 33 points. The awarded number of points is added to the other points when forming the final grade.</p> <p>The pre-requisite for the written part of the exam is a pre-passed practical exam.</p> <p>Repeated and Remedial exam</p> <p>Repeated and Remedial exams are conducted according to previously defined criteria of the final examination.</p> <p>The total number of points won on all forms of testing is translated into the final grade as follows:</p> <table><tr><th><i>Rating</i></th><th><i>Number of points</i></th><th><i>Description Rating</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	<i>Rating</i>	<i>Number of points</i>	<i>Description Rating</i>	10 (A)	95-100	remarkable success without mistakes or with minor errors	9 (B)	85-94	above average, with some mistakes	8 (C)	75-84	average, with subtle errors	7 (D)	65-74	generally good, but with significant shortcomings	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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6. Literature	<p>Obigatory:</p> <ul style="list-style-type: none">– Wolfe S, Pederson W, Kozin SH, Cohen M. Green`s Operative Hand Surgery, 7th edition. Elsevier; 2016. <p>Additional:</p> <ul style="list-style-type: none">– 1. Chung I, Kevin C. Hand and Wrist Surgery, Operative Techniques, 3nd edition. Elsevier Saunders; 2017.– Sethi M, Jahangir A, Obremskey W.Orthopedic Traumatology. Springer; 2013.– Slutsky DJ. The Art of Microsurgical Hand Reconstruction. Thieme; 2013.– Salihagić S, Hadžiahmetović Z, Vavra-Hadžiahmetović N. Trauma šake. Sarajevo: Institut za NIR KCUS; 2014.																					

7. Remark	<p>Lectures and practical exercises are held at the Clinic for Plastic Surgery, Clinical Center University of Sarajevo. Valid sanitary booklet and proper clothing are mandatory for student's attendance.</p> <p>All forms of teaching are mandatory. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation with lecturers: each working day 12 p.m-2 p.m</p> <p>Contact e-mail: sanela.salihagic@mf.unsa.ba</p>
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PLAN OF THE COURSE: HAND TRAUMA

Week 15.	Form of teaching	Number of hours
Tuesday	<p>Lecture: Introduction to hand trauma. The importance of hands in terms of functionality. Classification of hand injuries according to their etiology and anatomical aspects. Functional testing. Understanding the modalities of diagnosis and treatment.</p> <p>Injuries if the bone and joints of the hand. The clinical presentation, diagnostic methods. Osteosynthesis materials, indications for their use.</p> <p>Practice: Presentation of latching examination of the patient (optional) and through power point, with the presentation of the main algorithmic schemes for the access to the injured. Practical presentation of preoperative radiographs, discussion on each case, comparison with postoperative X-ray images.</p>	<p>2</p> <p>4</p>
Wednesday	<p>Lecture: Injuries of the flexor and extensor tendons of the hand Classification of flexor and extensor mechanisms. Evaluation of clinical problems. Methods of primary and secondary reconstruction.</p> <p>Practice: Placement of tendon seams on silicone models. Using various methods for tendon and peritendon seams.</p>	<p>1</p> <p>4</p>
Thursday	<p>Lecture: Surgery of the peripheral nerves. Classification of peripheral nerve injuries. Types of peripheral nerves reconstruction. The indication for primary and secondary reconstruction. Tendon transfers as a way of solving non reparable peripheral nerve lesions. Microsurgical reconstruction of the hand.</p> <p>Practice: Guidelines of the algorithmic assesment of the hand injury. Demonstration of the principles of nerve reparation using operative microscope and microsurgical instruments. Demonstration of the main principles of vascular anastomosis – principles of the “and to end” and “end to side”, using operative microscope and microsurgical instruments.</p>	<p>1</p> <p>4</p>
Friday	<p>Practical exam</p> <p>Partial exam</p>	<p>3</p> <p>1</p>
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0908	Course title: MINIMALLY INVASIVE CARDIAC SURGERY AND SURGERY OF TOMORROW		
Level: clinical	Year: V	Semester: IX	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lectures: Assistant Professor Nermir Granov MD PhD; Haris Vila MD MSc			
1. Overall aim	The overall aim of the Minimally Invasive Cardiac Surgery and Surgery of Tomorrow course, is to get acquainted students with modern operative techniques, their benefits, and the basic principles and trends of beyond tomorrow Surgery.		
2. Course contents	<p>Through the classes, the student would be in position to get acquainted and gain the following knowledge:</p> <p>Module 1. Digital technology in modern surgery The goal of the Module is to get acquainted student with the achievements and application of modern technologies in modern surgery.</p> <p>Module 2. Patient selection and risk assessment using logistic regression tools The goal of the Module is to get acquainted student with digital data manipulation, using the software necessary for patient selection, risk assessment, preparation and planning of the surgery.</p> <p>Module 3. Minimally Invasive and Robotic Surgery The goal of the Module is to get acquainted student with robotic surgery (Da Vinci robotic surgery and so-called remote surgical procedures), as well to the technical achievements of robotics in surgery in micro and nano scale.</p> <p>Module 4. Image guided surgery The goal of the Module is to get acquainted student with the latest achievements in the field of surgery where in the conditions of hybrid OR, simultaneously during the operation, the body is scanned and in real-time reconstructed, in order to facilitate the navigation of the surgeon through the diseased tissue.</p> <p>Module 5. 3D printers, micro and nanorobots surgery The goal of the Module is to get acquainted student with the role of 3D printers in the surgery, implantable artificial tissues (corematrix etc.). Also, to get acquainted student with surgical prospects of micro and nanorobotics.</p>		
3. Learning outcomes (knowledge and skills)	<p><i>Through the theoretical part, the students should acquire the following knowledge and competencies:</i></p> <ul style="list-style-type: none">- To get acquainted with the basic principles of minimally invasive cardiac surgery.- To get acquainted with the importance of digital technology and data processing in modern surgery.- To get acquainted with the programs and applications we use for image and video transfer and data manipulation.- To get acquainted with high standards necessary for modern surgery: planning		

	<p>patient assessment, outcome result processing.</p> <ul style="list-style-type: none"> - To get acquainted with the latest discoveries and guidelines related to the surgery of tomorrow. <p>Through practical work, students will be able to get acquainted with the following skills:</p> <p><i>Skills that a student needs to know (know how and when):</i></p> <ul style="list-style-type: none"> - Work in programs for transferring pictures, videos and data - Work with 3D image rendering software - Work with programs and applications for risk assessment in patients - To get acquainted with the basic principles of the operational setting for minimally invasive cardiac surgery operations - Work with postoperative monitoring
4. Learning methods	<p>Lecturers: 10 hours</p> <p>Practical work: 10 hours</p>
5. Method of knowledge assessment and examination	<p>Assessment of student's knowledge shall be done continuously, which includes Practical exam and Partial exam.</p> <p>Practical Exam A Practical Exam implies an assessment of the acquired skills through Modules 1-5. The skill test will be performed through pre-defined tasks on the check list. The maximum number of credits awarded on a Practical Exam is 40. The minimum number of credits for a successfully passed practical exam is 22. These points are added to the others when forming the final grade.</p> <p>Partial Exam The partial exam is a test of knowledge, consisting of 30 Multiple Choice (MCQ) questions. Each correct answer on the test carries 2 points. The minimum number of points earned for a successful test is 33 points, maximum 60.</p> <p>Final exam If a student has not passed the practical part of the exam at the end of the course, the evaluation of the acquired skills is done on the Final exam by completing the tasks defined in the check list. Each task carries the appropriate number of points. The maximum number of points a student can win is 40. To get a practical exam passed, the student must win at least 22 points. The awarded number of points is added to the other points when forming the final grade. If a student has not passed the Partial exam at the end of the course, the Final exam will be a written test with 30 MCQ questions. Each correct answer has 2 points, which amounts to a maximum of 60 points. To qualify for the exam, you must win at least 33 points. The awarded number of points is added to the other points when forming the final grade. The pre-requisite for the written part of the exam is a pre-passed practical exam.</p> <p>Repeated and Remedial exam Repeated and Remedial exams are conducted according to previously defined criteria of the final examination.</p> <p>The total number of points won on all forms of testing is translated into the final</p>

	grade as follows:																					
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6. Literatura	<p>Obligatory:</p> <ul style="list-style-type: none">- Tuszynski JA, Kurzynski M. Introduction to molecular biophysics. Boca Raton-London-New York: CRC Press; 2003. <p>Additional:</p> <ul style="list-style-type: none">- Drexler KE. Nanosystems: molecular machinery, manufacturing and computation. New Jersey: John Wiley and Sons; 1992.- Freitas RA Jr. Basic capabilities. Nanomedicine, vol I. Georgetown: Landes Bioscience; 1999.- Kusaka M, Sugimoto M, Fukami N, Sasaki H, Takenaka M, Anraku T, Ito T, Kenmochi T, Shiroki R, Hoshinaga K. Initial Experience with a Tailor-made Simulation and Navigation Program Using a 3-D Printer Model of Kidney Transplantation Surgery. Transplant Proc. 2015;47(3):596-9.																					
7. Note	<p>All forms of instruction are compulsory. Lectures and exercises are held at the Clinic for Cardiovascular Surgery, CCU Sarajevo. Only students who have a valid sanitary booklet and prescribed uniform will be able to attend the exercises. Fixing absences from classes is in accordance with applicable legal regulations. Consultation hours: each working day from 12 to 14 hours. Contact e-mail address: nermir.granov@mf.unsa.ba</p>																					

COURSE PLAN: MINIMALLY INVASIVE CARDIAC SURGERY AND SURGERY OF TOMORROW

Week 15.	The form of teaching	Hours
Tuesday	Lectures: introductory lecture on the achievements and application of modern technologies in modern surgery, basic postulates of minimally invasive cardiac surgery as well as an introduction to the basic principles of robotic surgery, micro and nano surgery.	2
	Lectures: Patient selection and risk assessment using logistic regression tools. Learn the importance and importance of digital technology in data processing when it comes to modern surgery.	2
	Exercises: Getting to know and work in IMPAX video, video and data transmission programs; BIS; TRIMENSIO.	2
Wednesday	Lectures: The high standards that are necessary for performing modern surgery: planning, performing, post-operative treatment and processing postoperative results.	3
	Exercises: Work with 3D image rendering, caliper, cropping software. EuroScore I, EuroScore II, STS score.	3
Thursday	Lecture: 3D printers, micro and nanorobots surgery.	2
	Exercises: Attend an operative procedure in hybrid or endoscopic cardiac surgery, where with minimal invasive setting actively used and processed digital data for surgery. Postoperative monitoring.	3
Friday	Partial exam	1
	Practical exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September examination term)	

Code: MFSE 0909	Course title: PSYCHOSOMATIC MEDICINE AND CONSULTATION-LIASON PSYCHIATRY		
Level: clinical	Study year: V	Semester: IX	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers:	Assistant Professor Alma Dzubur Kulenovic MD PhD		
1. Overall aim	The educational objective of the program is to develop student's clinical expertise and, through lectures and practical work and liaison efforts, increase the mental health skills and knowledge of nonpsychiatrists.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. History of Consultation-Liaison Psychiatry The goal of the Module is to introduce a student with the development of psychosomatic medicine since the release of psychiatry from isolated institutions to the general hospital, Benjamin Rush, Adolf Meyer, Helen Francis Dunbar, to subspecialization of consultative-liaison psychiatry (CLP) and psychosomatic medicine in Europe and the United States.</p> <p>Module 2. Effective psychiatric consultation The aim of the module is to introduce students to the way conversations with the attending physician and clarify the reasons consultation, determine the level of urgency, review of medical records, examination of the patient and risk assessment with mandatory clarifying the specifics of medical confidentiality in terms of CLP, writing reports and feedback to ordinarius and medical team, engaged in the care of the patient.</p> <p>Module 3. Medico- legal issues in CLP The goal of the Module is to present the specificity of the confidentiality and relationship of the doctor-patient in CLP conditions and the multidisciplinary team of health workers.</p> <p>Module 4. Personality and response to illness The goal of the Module is to introduce a student with personality theory, defense mechanisms, and mechanisms for dealing with stress.</p> <p>Module 5. Specifics of CLP in various fields of medicine The aim of the Module is to familiarize the student with the specificities of the consiliatory-liaison psychiatry in various branches of medicine (internal medicine, surgery, gynecology and obstetrics intensive care, hemodialysis, oncology).</p> <p>Module 6. Unique issues: transplantation The goal of the Module is to introduce a student with a method of working with family members of a potential donor and working with a recipient of organs and assisting in adaptation to stress.</p> <p>Module 7. Casualties of disasters and terrorist attacks The goal of the Module is to introduce the student with specificities and plans</p>		

	for immediate response to natural disasters and terrorist attacks, ie situations of mass exposures to traumatic stress of extreme proportions, importance of psychosomatic approach to triage and referral to further treatment, and work with helpers and volunteers.															
5. Learning outcomes (Knowledge, skills and competences)	The student will acquire knowledge about the field of psychosomatic medicine and consultation-liason psychiatry, medico-legal issues relevant to the field (patient-doctor confidentiality) and the skill of performing an effective psychiatric consultation exam. Students will acquire the ability to observe the patients through a biopsychosocial paradigm.															
4. Teaching methods	Lectures : 10 hours Practical teaching: 10 hours															
6. Method of knowledge assessment and examination	<p>Continuous knowledge testing Continuous knowledge testing involves Practical exam and Partial exam.</p> <p>Practical exam It involves evaluation of acquired skills related to taking the anamnesis.. The evaluation of acquired skills is performed by fulfilling tasks previously defined in the check list. The total number of points the student can earn in this part of the continuous knowledge testing is 40. The student must earn at least 22 points in order for the Practical exam to be considered successful.</p> <p>Partial exam It involves a written test with 30 multiple choice questions (MCQ). Each correct answer is worth 2 point out of the total of 60 points. The student must earn at least 33 points for the exam to be considered successful.</p> <p>Final exam If during the term the student fails to pass Practical exam and Partial exam, he/she will take up the failed parts at the Final exam. Final exam is in the form of oral examination (5 questions weighing maximum 20 points each). A successfully passed Practical exam is required to take a oral examination of the Final exam.</p> <p>Repeated and Remedial exam Repeated and Remedial exam is performed in accordance with previously defined Final exam criteria.</p> <p>Forming the final grade The total number of points won on all forms of knowledge testing is translated into the final grade as follows:</p> <table><tr><td><i>grade</i></td><td><i>points</i></td><td><i>description</i></td></tr><tr><td>10(A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</td></tr><tr><td>9(B)</td><td>85-94</td><td>above average, with some mistakes</td></tr><tr><td>8(C)</td><td>75 -84</td><td>average, with subtle errors</td></tr><tr><td>7(D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr></table>	<i>grade</i>	<i>points</i>	<i>description</i>	10(A)	95-100	remarkable success without mistakes or with minor errors	9(B)	85-94	above average, with some mistakes	8(C)	75 -84	average, with subtle errors	7(D)	65-74	generally good, but with significant shortcomings
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	6(E)	55-64	meets the minimum criteria
	5(F,FX)	< 54	does not meet the minimum criteria
6. Literature	Obligatory: Selected chapters from: – Philbrick KL, et al. Clinical Manual of Psychosomatic Medicine: A Guide to Consultation-liaison Psychiatry. American Psychiatric Publishing; 2011.		
7. Remark	Lectures and exercises are held at the Psychiatric Clinic, CCU Sarajevo. All forms of teaching are mandatory. Only students who have a valid sanitary booklet and prescribed uniform will be able to attend the exercises. Fixing absences from classes is in accordance with applicable legal regulations. Consultation with lecturers: each working day 12 p.m.-2 p.m., with prior announcement by e-mail: alma.dzubur@mf.unsa.ba		

**COURSE PLAN: PSYCHOSOMATIC MEDICINE AND CONSULTATION-LIASON
PSYCHIATRY**

Week 15.	Teaching method	Number of hours
Tuesday	Lecture: History of psychosomatic medicine and Consultation-Liason Psychiatry	2
	Lecture: Successful psychiatric examination in CLP. Medico-legal aspects of CLP (confidentiality). Personality and individual response to disease.	3
Wednesday	Lecture: Specific aspects of CLP in different branches of medicine (Medicine, Surgery, ObGyn, Oncology, ICU, hemodialysis). Specific topic: transplantation.	3
	Exercise: Psychiatric examination in CLP. CLP in hemodialysis. CLP in medicine wards.	3
Thursday	Exercise: CLP in surgical wards. CLP in oncology and/or intensive care unit.	3
	Exercise: Assistance to survivors of natural disasters and terrorist attacks.	2
Friday	Lecture: Partial exam	2
	Exercise: Practical exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0910	Course title: REHABILITATION OF PATIENTS WITH SPINAL CORD INJURIES		
Level: clinical	Study year: VI	Semester: XI	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturer: Professor Narcisa Vavra Hadžiahmetović, MD PhD; Associate professor Ksenija Miladinović, MD PhD; Associate professor Edina Tanović, MD PhD; Assistant Damir Čelik, MD MSc.			
1. Overall aim	The overall aim of the course is to increase understanding of principles of theory and practice of modern rehabilitation of patients with Spinal Cord Injuries (SCI)		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Spinal cord injury (SCI) from the point of rehabilitation The aim of the module is to introduce students to the complexity of spinal cord injury, primary and secondary complications, implications on disability and the possibilities of rehabilitation, as well as treatment and prevention of complications.</p> <p>Module 2. Bladder dysfunction and methods of rehabilitation in patients with SCI The aim of the module is to introduce students with bladder dysfunction – neurogenic bladder, urodynamic diagnosis and follow up, and rehabilitation program in patients with SCI.</p> <p>Module 3. Kinesiotherapy in patients with SCI The aim of the module is to introduce students with specific programs of kinesi therapeutic procedures and various aids in patients with SCI.</p> <p>Module 4. Osteoporosis in patients with SCI The aim of the module is to introduce students with specific type of secondary osteoporosis in patients with SCI, its prevention and treatment.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through the lectures the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none">1. Recognize major functional disorders in patients with SCI2. Understand the impact of SCI on functioning3. Define impairment, disability and handicap in patients with SCI4. Differentiate disease and consequences of disease on personal and society level in patients with SCI5. Indicate goal of the rehabilitation process in patients with SCI6. Name the members of rehabilitation team and their role in rehabilitation process in patients with SCI7. Describe mechanism of action and indication of particular physical agent in patients with SCI		

	<p><i>Through the practical work students will acquire following skills:</i></p> <ol style="list-style-type: none"> 1. Medical history taking in patients with SCI 2. Functional assessment: functional, motor function, cognitive, pain and social tests 3. Working diagnosis based on an assessment of the general condition and functional tests in patients with SCI 4. Choosing a rehabilitation program in patients with SCI 5. Assessment of rehabilitation results in patients with SCI 6. Patient education, family education, community education in patients with SCI
4. Teaching methods	<p>Lectures: 10 hours, Practical works: 10 hours</p>
5. Method of knowledge assessment and examination	<p>Student assessment will be carried out continuously during the semester and in the form of Final exam.</p> <p>Practical exam Practical examination includes assessment of skills acquired through all the modules. Evaluation of acquired skills is done through the fulfillment of the tasks previously defined in the checklist (check list). Each task carries a certain number of points. The maximum number of points that a student can win is 40. For practical exam to be considered passed, student must gain at least 22 points. Number of points will be added to other points in the formation of the final mark.</p> <p>Partial exam Written test is a test with 30 MCQ questions, which will examine knowledge adopted through all modules. Each correct answer carries 2 points, a total of 60 points. To be considered passed the exam, student should win at least 33 points. Number of points are added to other points and concludes the final score.</p> <p>Final exam If student failed to pass Partial exam, the examinations material is deposited on the Final exam, which contains a total of 30 MCQ questions, each correct answer brings 2 points. The minimum number of points to pass the exam is 33 points, a maximum 60 points. The condition for passing the written part of the Final examination is previously passed the Practical exam. Achieved points are added to other points and together form the final score.</p> <p>Repeated and Remedial exam Repeated and Remedial exam are conducted according to previously defined criteria of the Final exam.</p> <p>The total number of points obtained through all forms of assessment, is converted to the final mark as follows:</p>

	<i>Rating</i>	<i>Number of points</i>	<i>Description Rating</i>
	10 (A)	95-100	remarkable success without mistakes or with minor errors
	9 (B)	85-94	above average, with some mistakes
	8 (C)	75-84	average, with subtle errors
	7 (D)	65-74	generally good, but with significant shortcomings
	6 (E)	55- 64	meets the minimum criteria
	5 (F,FX)	< 55	does not meet the minimum criteria
6. Literature	Obligatory: – Sue Ann Sisto, Erica Druin, Martha Sliwinski. Spinal Cord Injuries. Management and Rehabilitation. Elsevier Inc.; 2009. (Selected chapters) Additional: – Walter Frontera, Joel DeLisa, Bruce Gans, Nicolas Walsh, Lawrence Robinson. De Lisa's Physical Medicine and Rehabilitation. Fifth Edition. Lippincott Williams & Wilkins; 2013.		
7. Remark	Lectures and exercises are held at the CCU Sarajevo. All forms of teaching are mandatory. Only students who have a valid sanitary booklet and prescribed uniform will be able to attend the exercises. Fixing absences from classes is in accordance with applicable legal regulations. Consultation with lecturers: each working day 12 p.m.-2 p.m. with prior announcement by e-mail: narcisa.vavra@mf.unsa.ba		

COURSE PLAN: REHABILITATION OF PATIENTS WITH SPINAL CORD INJURIES

Week 15.	Teaching form	Number of hours
Tuesday	Lecture: Spinal cord injuries (SCI) – definition, etiology, diagnostic procedures, clinical signs and symptoms, secondary complications, rehabilitation program – specific approach. Bladder dysfunction – neurogenic bladder, diagnostic procedures, rehabilitation program	3
	Practical: Taking a medical history – specific approach, tests and scales in patients with SCI. Practical application of prevention methods for secondary complications in patients with SCI. Practical application of rehabilitation program for neurogenic bladder in patients with SCI. Urodynamic diagnostic for urinary incontinence.	3
Wednesday	Lecture: Kinesiotherapy in patients with SCI	3
	Practical: Practical application of kinesiotherapy – specific approach in patients with SCI	3
Thursday	Lecture: SCI and osteoporosis	2
	Practical: Rehabilitation program in patients with SCI and osteoporosis	2
Friday	Lecture: Partial exam	2
	Practical: Practical exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0911	Course title: SPORT TRAUMATOLOGY		
Level: clinical	Study year : V	Semester: IX	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Adnana Talić-Tanović, MD PhD; Ass. Adnan Papović, MD MSc.			
1. Overall aim	The overall aim of the Sport Traumatology Course is to increase knowledge and get students familiar with contemporary knowledge about the mechanisms of occurrence, diagnosis and treatment of sports injuries.		
2. Course contents	<p>Through topics will be covered within the Modules:</p> <p>Module 1. Introduction to sports traumatology The aim of the Module is to introduce students to the course and to elarn definition of sports injuries. The student will be introduced with the importance of sports medicine and sports traumatology for top athletes and in recreational sports, as well as with importance of the correct and timely diagnosis and prevention of specific injuries and relationship athlete-doctor-coach.</p> <p>Module 2. Injury to the head, neck and spine The student will be introduced with the mechanism of injury, diagnostic and therapeutic procedures for the most common sports injuries in this region, mechanism of prevention and treatment algorithm of the most common sports injuries in the region with special reference to the "syndrome of painful lumbar spine".</p> <p>Module 3. Injuries of upper limbs The student will be introduced with the mechanism of occurrence, diagnosis and treatment of acromioclavicular joint injuries, sports injuries of the shoulder joint (acute dislocation of the shoulder, chronic instability of the shoulder, rotator cuff injury, impingement syndrome, fractures in the shoulder, subacromial bursitis) with special emphasis on arthroscopic management of acute and chronic sports injuries, as well as with diagnostic and therapeutic procedures for the most common sports injuries of the elbow and forearm and injuries of the wrist and hand.</p> <p>Module 4. Injuries of the pelvis and lower limbs The aim of the Module is to introduce students with the most common injuries of the region: bursitis, clicking hip syndrome, muscle of the rear leg, syndrome of small rotator of the hip, fractures and dislocations, as well as getting to know the mechanisms of meniscus and ligaments injury and diagnosis, with methods of conservative and surgical treatment of chondral lesions and treatment options: conservative, surgical (micro fracture, mosaic plastica, autologue chondrocyte transplantation) and injuries of the lower leg and foot.</p> <p>Module 5. The syndrome of overuse injuries in specific sports The aim of the Module is to introduce students with the pain syndrome in athletes who have chronic feature and basis for understanding this</p>		

	syndrome is in the pathophysiology of tendon inflammation.
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through practical work in the sports clinic, students will gain following knowledge and competence:</i></p> <ul style="list-style-type: none"> - Clinical examination of a patient with sport injury - Radiological diagnostics of sport injuries - Functional tests for patients with sport injuries and treatment. <p><i>Through practical work students will acquire the following skills:</i></p> <ul style="list-style-type: none"> - A clinical examination of the injured athletes or fitness in the outpatient department - Indication setting for laboratory and radiologic tests - Interpretation of X-ray imaging - Perform manual reposition the bone fracture and placing immobilization (plastercast, bandage, orthosis placement) - Locomotor functional tests.
4. Teaching methods	<p>Lectures: 10 hours</p> <p>Practical work: 10 hours</p>
5. Method of knowledge assessment and examination	<p>Assessment of student's knowledge shall be done continuously, which includes Practical exam and Partial exam.</p> <p>Practical Exam A Practical Exam implies an assessment of the acquired skills through Modules 1-5. The skill test will be performed through pre-defined tasks on the check list. The maximum number of credits awarded on a Practical Exam is 40. The minimum number of credits for a successfully passed practical exam is 22. These points are added to the others when forming the final grade.</p> <p>Partial Exam The partial exam is a test of knowledge, consisting of 30 Multiple Choice (MCQ) questions. Each correct answer on the test carries 2 points. The minimum number of points earned for a successful test is 33 points, maximum 60.</p> <p>Final exam If a student has not passed the practical part of the exam at the end of the course, the evaluation of the acquired skills is done on the Final exam by completing the tasks defined in the check list. Each task carries the appropriate number of points. The maximum number of points a student can win is 40. To get a practical exam passed, the student must win at least 22 points. The awarded number of points is added to the other points when forming the final grade. If a student has not passed the Partial exam at the end of the course, the Final exam will be a written test with 30 MCQ questions. Each correct answer has 2 points, which amounts to a maximum of 60 points. To qualify for the exam, you must win at least 33 points. The awarded number of points is added to the other points when forming the final</p>

	<p>grade.</p> <p>The pre-requisite for the written part of the exam is a pre-passed practical exam.</p> <p>Repeated and Remedial exam</p> <p>Repeated and Remedial exam are conducted according to previously defined criteria of the final examination.</p> <p>The total number of points won on all forms of testing is translated into the final grade as follows:</p> <table><tr><th>Rating</th><th>Number of points</th><th>Description Rating</th></tr><tr><td>10 (A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	Rating	Number of points	Description Rating	10 (A)	95-100	remarkable success without mistakes or with minor errors	9 (B)	85-94	above average, with some mistakes	8 (C)	75-84	average, with subtle errors	7 (D)	65-74	generally good, but with significant shortcomings	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">– Doral MN. et al. Sport injures. Berlin- Heidelberg: Springer -Verlag; 2012. <p>Additional:</p> <ul style="list-style-type: none">– Pećina M, Bojanić I. Overuse of the Musculoskeletal System. Zagreb:CRC PRESS; 2004.– Talić-Tanović A, Hadžiahmetović Z. Sportska traumatologija Sarajevo: Fotoart; 2012.– Hadžiahmetović Z, Vavra Hadžiahmetović N. Traumatologija, Sarajevo: Avicena; 2005.																					
7. Remark	<p>All forms of teaching are mandatory. Valid sanitary booklet and proper clothing are mandatory for student's attendance.</p> <p>Lectures and practical exercises are held at the Clinic for Orthopedic Clinical Center University of Sarajevo. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation hours for students are each working day from 12 to 14 hours, upon agreement with the teaching professor or by mail: adnana.talic@mf.unsa.ba</p>																					

PLAN OF SUBJECT: SPORT TRAUMATOLOGY

Week15.	Form of teaching	Number of hours
Tuesday	Lecture: Introduction to Sports Traumatology. Sports injuries to the head, neck and spine. Specific sports muscular-bone lesions of the upper extremities.	3
	Practice: Clinical overview of the injured athlete. Primary wound treatment and overturning. Placing an indirect extension in neck injury. Testing the Movement of Joints. Practically performing clinical tests for shoulder instability. Performing clinical tests for hand wrist injuries. Muscle strength testing.	3
Wednesday	Lecture: Sports muscular-bone lesions of lower extremities.	3
	Practice: Testing the Movement of Joints. Practical performance of clinical tests in injury and knee instability. Placing an indirect extension in meniscus injury. Clinical overview and analysis of foot status in athletes. Presence of an operation of the knee arthroscopy.	3
Thursday	Lecture: Over-use syndrome in specific sports.	2
	Practice: Practical performing of functional tests in overuse syndrome. Radiological examination of fractures, fatigue. Clinical examination, ultrasound finding and Achilles tendon rupture tests.	2
Friday	Practical Exam	2
	Partial Exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0912	Course title : FRACTURES AND DISLOCATIONS OF THE WRIST		
Level : clinical	Study year : V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers : Professor Adnana Talić-Tanović, MD PhD; Ass. Adnan Papović, MD MSc			
1 Overall aim	The overall aim of the Fractures and Dislocation of the Wrist Course is to increase the knowledge about fractures and dislocations of the wrist.		
2. Course contents	<p>During the course, the student will acquire the following knowledge:</p> <p>Module 1. Biomechanics and Wrist Stability Disorder The aim of the Module is to introduce the student to functional tests for hand wrist injuries, radiographic computerized injury analysis of the wrist hacks and dislocations of children's wrists and wheels for wrists.</p> <p>Module 2. Injuries of the distal radius The aim of the Module is to get the student acquainted with injuries of the distal radius, non-oscillatory ultrasound in the treatment of distal radius fractures, the distal radioulnar wrist, the stability of the distal radioulnar joint, substitution and locking of the distal radiulnar joint, the most recent treatment of poorly remedied fracture of the distal radius, computer preoperative planning of corrective osteotomy.</p> <p>Module 3. Injuries of the Carpal Bones The aim of the Module is to get the student acquainted with bone tissue, aseptic necrosis of scaphoid bone (Morbus Preiser) and aseptic necrosis of the lunate bone (Morbus Kienbock), stretchable astrodesis for posttraumatic degenerative changes, principles and treatment of small bones of the carpus.</p> <p>Module 4. Traumatic instability of the wrist and the hand The aim of the Module is to get the student acquainted with classification of instability, the most recent knowledge of posttraumatic carpal instability, individual scaphoid-lunate instability, then lunotriquetral injuries , radiocarpal, medium carpal, perilunate instability, treatment of traumatic instability.</p> <p>Module 5. Future of Fracture Treatment and Dislocation of the Wrist The aim of the Module is to get the student acquainted with minimal invasive procedures such as arthroscopy, the most recent hybrid intrinsic osteosynthesis system, microscopic percutaneous operations, the latest inserts for intramedular fixation - micro nails, computer preoperative planning.</p>		
3. Learning Outcomes	<p>Students will acquire the knowledge of the wrist injury, algorithmic scheme in diagnosis and the modern aspects of treatment. . They will be able to set indication and conservatively treat reduction of fracture, plaster casting, follow-up the patient after the treatment.</p> <p>Through the lectures the student will gain following knowledge and competences:</p>		

	<ol style="list-style-type: none"> 1. Explain biomechanics of the wrist and describe its anatomy; 2. Learn mechanisms of different wrist injuries; 3. Differentiate injuries of carpal bones and its instabilities; 4. Describe different treatment options. <p>Through the practical work students will acquire the following skills:</p> <p><i>The skills that a student needs to know practically perform (knows how and does):</i></p> <ul style="list-style-type: none"> - taking of anamnesis and clinical examination of the patient with injury to the wrist - interpretation of RTG CT and MRI manual wrists - evaluation of rehabilitation with interpretation of rtg images after removal of immobilization <p><i>Skills that a student needs to know (knows how):</i></p> <ul style="list-style-type: none"> - radiographic analysis, computer measurements of angles and dislocation of the wrist - skill of fracture reposition and plastering of plaster arches after the circular plaster - adopt an algorithm for preoperative preparation of surgical procedures of the wrist - introduce the use of surgical instruments and osteosintetskog material for wrist surgery - learn the principles of operative treatment - the presence of surgery.
4. Learning Methods	<p>Teaching is conducted through:</p> <ul style="list-style-type: none"> - Lectures 10 hours - Practical exercises: 10 hours
5. Knowledge Assessment Methods	<p>Continuous knowledge and skills assessment will be carried out through Partial exam and Practical Exam.</p> <p>Partial exam Partial exam contains a total of 30 MCQ questions, each correct answer brings 2 points. A minimum of 33 points, a maximum of 60 points shall be deemed to be passed the student's examination.</p> <p>Practical exam Practical exam is conducted for testing practical knowledge and skills over the issues defined in the check lists. Practical exam will be considered passed if the student wins at least 22 points, a maximum of 40 points.</p> <p>Final exam On Final exam, the student takes the exam that he did not pass during the continuous assessment of the knowledge. A successfully passed practical exam is required to take a written part and oral examination of the Final exam. The final exam is conducted and evaluated according to predefined methods of knowledge checking.</p> <p>Repeat and Remedial exam</p>

	<p>Repeated and Remedial exam are conducted and evaluated according to predefined methods of knowledge checking. A successfully passed practical exam is required to take a written part and oral examination of the Repeat and Remedial exam.</p> <p>Forming a final grade Final grade is formed by summing all the points earned for each form of knowledge checking.</p> <table><tr><th><i>Rating</i></th><th><i>Number of points</i></th><th><i>Description Rating</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	<i>Rating</i>	<i>Number of points</i>	<i>Description Rating</i>	10 (A)	95-100	remarkable success without mistakes or with minor errors	9 (B)	85-94	above average, with some mistakes	8 (C)	75-84	average, with subtle errors	7 (D)	65-74	generally good, but with significant shortcomings	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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5 (F,FX)	< 55	does not meet the minimum criteria																				
6. Literature	<p>Obligatory: - Doral MN. et al. Sport injures. Berlin-Heidelberg: Springer-Verlag; 2012.</p> <p>Additional:</p> <ul style="list-style-type: none">– Pećina M, Bojanić I. Overuse of the Musculoskeletal System. Zagreb: CRC PRESS; 2004.– Talić-Tanović A, Hadžiahmetović Z. Sportska traumatologija. Sarajevo: Fotoart; 2012.– Hadžiahmetović Z, Vavra-Hadžiahmetović N. Traumatology. Sarajevo: Avicena ; 2005.																					
7. Remark	<p>All forms of teaching are mandatory. Lectures and practical exercises are held at the Clinic for Orthopedic Clinical Center University of Sarajevo. Valid sanitary booklet and proper clothing are mandatory for student’s attendance. Fixing absences from classes is in accordance with applicable legal regulations. Consultation hours for students are each working day from 12 to 14 hours, upon agreement with the teaching professor or by mail: adnana.talic@mf.unsa.ba</p>																					

COURSE PLAN: FRACTURES AND DISLOCATION OF THE WRIST

Week 15.	Form of teaching	Number of hours
Tuesday	Lecture: Surgical anatomy and manual wrist biomechanics. Epidemiology and the mechanism of injury. Clinical signs of fracture and dislocation in the wrist. Distal radius fracture. Fracture Classifications. Clinical Image, Diagnosis Mode. Treatment Algorithm.	3
	Practice: Clinical overview of the patient with injuries to the wrist. Radiological diagnosis and discussion of the presented shots in the ambulance. Functional tests on wrist injuries. Local finding at distal radius fracture. Manual repositioning and immobilization in gypsum. Specific radiological diagnosis with computer measuring angles.	3
Wednesday	Lecture : Fractures and dislocations of bones of lunch. Replacement of slack lobe. Pseudoarthrosis of snout bone. Treatments of treatment. The lunatus breakthrough. Aseptic necrosis.	2
	Practice: Clinical examination of bone fracture. Interpretation of RTG and CT recordings Reposition and immobilization. Operative treatment of presentations of operated patients.	2
Thursday	Lectures: Traumatic instability bone of lunch. Classification of instability. Conservative and operative treatment of complications. Remedies of the wrists in children. Other bone remedies. Remote distal radiolabel joint. Modern aspects of treatment: minimal invasive operative procedures, arthroscopy and wrist joint aloplasty.	3
	Practice: Presentation of hospitalized patients with traumatic instability of the wrist (from clinical archives and radiological evaluation on the computer) .Radiographic analysis and instability and computer measurements. Types of Immobilization: Preoperative Prevention and Types of Osteosynthesis. Clinical Overview and Functional Tests. Mobilization of these injuries. Use of low-pulse ultrasound in the treatment of fractures in the manual wrist.	3
Friday	Practical Exam	2
	Partial Exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 0913	Course title: SCREENING AND EPIDEMIOLOGY OF CHRONIC DISEASES
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Level: undergraduate	Study year: V	Semester: IX	ECTS: 1
Status: elective	Total contact hours: 20 (8+2+10)		
Prerequisites:	According to the Study Regulation		
Lecturers: Prof. Semra Čavaljuga, MD PhD; Professor Assistant Enisa Ademović, MD MSc; Senior assistant Lejla Džananović, MD MSc			
1. Overall aim	Overall aim of this course is mastering with basic concepts and methods in chronic diseases epidemiology, their importance and ways of preventions, early disease detection and risk factors among individuals. Special attention of the course is working on screening methodology, its evaluation methods for better understanding and application in student's future physician's practice. Besides this, objective of this course it that students applying their gained fundamentals on epidemiological methods during the Epidemiology course on the thirds year of study, familiarize themselves with unique application of those methods for key chronic diseases, including cancer, cardiovascular disease, diabetes, and other chronic diseases in order to design and apply a research with proper statistical analysis, presenting and defending their results. The purpose of this course is to provide basic knowledge and skills needed to understand and critically evaluate published research on chronic diseases and skills on choosing and application of an adequate epidemiological method for designing and conducting a research with fulfilling all set objectives to specific research question in improving their chronic disease prevention skill in future practice.		
2. Course contents	<p>During this elective course „Screening and Epidemiology of Chronic Diseases“ students will gain the knowledge through following modules:</p> <p>Module 1. Introduction to epidemiology of chronic diseases and epidemiological methods</p> <p>The goal of this Module is to provide an introduction to the basics of field of chronic disease epidemiology, measures of disease frequency, most relevant risk factors by population subgroups/clusters, early disease detection and risk factors. Students will, with critically evaluation and analysis of applied epidemiological methods on various published research familiarize themselves with advantages and disadvantages in each, and specifics of their application in chronic disease research. Fundamentals of screening terminology, definitions and principles thought during the course in <i>epidemiology</i> at the third year will be briefly overviewed.</p> <p>Module 2. Cardiovascular disease epidemiology – screening and risk assesment methods</p> <p>The goal of this Module is to provide introduction to the field of cardiovascular disease epidemiology (particularly coronary heart diseases and cerebrovascular): frequency and risk factors, trends, etiology hypothesis creation, application of epidemiological methods in researching these diseases specificity, options for risk factors' screening. Introduction to developing cardiovascular disease by risk assessment methods and their application will be done.</p> <p>Module 3. Cancer epidemiology and screening</p> <p>The goal of this Module is to provide introduction to the field of cancer epidemiology and prevention, frequency and risk factors, trends, screening programs (breast cancer, colon cancer, cervix cancer). Review and analysis of</p>		

	<p>available research with critical appraisal of a screening program (components: reliability, feasibility, validity, efficiency and effectiveness).</p> <p>Module 4. Diabetes epidemiology and screening This Module is composed of: overviewing of epidemiological characteristics Diabetes Type I and Type II, frequency and risk factors, options for screening of modifiable risk factors, and epidemiology of obesity in childhood. Introduction on specific issues applying epidemiological methods in diabetes researching with risk assesment of diabetes type 2 development with basic application and analysis will be done.</p> <p>Module 5. Other major chronic disease epidemiology and screening Through this Module students will introduce with other major chronic diseases and conditions relevant for health systems, overviewing their epidemiological characteristics, frequency and risk factors: respiratory diseases, rheumatic diseases, traumas and injuries, genetic diseases, Alzheimer's disease, and mental health disorders</p>
3. Learning outcomes (Knowledge, skills and competences)	<p>During this elective course „Screening and epidemiology of chronic diseases“ students will develop the <i>following knowledge, skills and competencies</i>:</p> <ul style="list-style-type: none"> - Fully master measures of chronic disease frequency in population (incidence and prevalence) in these diseases distribution as well as their risk factors by different population subgroups/clusters; master: probability, risk and odds in describing risk factors and particular chronic disease association(s); - Analytical epidemiology methods/studies principles and applications (case-control and cohort); creation of contingency tables; choosing an adequate measure of association; calculation of confidence interval; understanding of measure of effect for certain exposure; - Fully master screening basic terminology and definitions and concept ; importance of early detection and risk factors and prevention; - Fully master diagnostic tests intrinsic and extrinsic values' calculation and application. - Interpret strengths and weakness of various designs and methods used in chronic diseases' epidemiological researches through the available epidemiologic literature; - Master reliability, feasibility, validity, efficiency and effectiveness in a screening program, - Develop basic knowledge in understanding of chronic disease multi-factorial causality; - Develop basic knowledge in choosing and application of an appropriate epidemiological method for design and conduct small researches with fulfilling a research question; - Develop basic knowledge in choosing and application of an appropriate risk assesment methods in early identification individual at risk of developing particular chronic diseases (cardiovascular, cancer, diabetes mellitus...) - Gain confidence in communicating epidemiologic information thru presentation of self-design and conducted a small pilot research.
4. Teaching methods	<p>Lectures are organised as «sandwich» - exchange of collective learning and individual learning through interactive lecturer approach.</p> <p>Every lab session lasts 1 hours (45 minutes). Thus, students will work in small</p>

	<p>groups of 5-7 students max, They are all designed as interactive, problem oriented and with examples from real life practice.</p> <p>Seminar paper is mandatory. Students will work individually on their paper on predetermined topics. Seminar work will be a terrain work, students will go to the field to conduct a small pilot research and written project reaserch with appropriate statistical analysis of data (with minimum 100 cases/participants in a study divide in two groups in order to adequately be apply learned statistical method of bi-variant analysis)). Two contact hours are planned for this research preparation.</p> <p>This project will be presented publicly to all students at the end of the course.</p> <p>This course has the following contact hours composition:</p> <ul style="list-style-type: none"> - 8 lecture hours (7 lectures by a lecturer and 1 – the last one in a semester for students’ papers presentation) - 10 hours of exercises - 2 hours for preparation of a paper/seminar 																		
<p>5. Method of knowledge assessment and examination</p>	<p>Knowledge assessment will be performed through:</p> <ul style="list-style-type: none"> – short tests / quizzes – total of 2 – individual work on seminar paper/project on given topic with consultation with course professor and assistants with presentations – written exam based on MCQ methodology with 4-5 given answers on 2/3 of the questions; 1/3 of the questions will be in the essay form or calculation. It will be organized after the completion of lectures. – oral final exam will be organized for students wanting a higher grade or exceptional students. <p>Grading will be performed by points given for every part of the studying activity and knowledge testing during the semester and on the final exam, by the following structure:</p> <table border="0"> <tr> <td>– short tests / quizzes</td><td>20% of the final grade</td></tr> <tr> <td>– written exam</td><td>40% of the final grade</td></tr> <tr> <td>– seminar paper and presentation</td><td>40% of the final grade</td></tr> </table> <p>Final grade will be calculated as a pondered arithmetic mean of all grades given throughout semester (i.e. joint arithmetic mean).</p> <p>Grading of writing parts of the exam will be performed with respect to rules and regulations of syllabi harmonization of Bologna studying for every single exam term as following:</p> <table border="0"> <tr> <td>○ 95-100% correct answers</td><td>- grade 10</td></tr> <tr> <td>○ 85-94% correct answers</td><td>- grade 9</td></tr> <tr> <td>○ 75-84% correct answers</td><td>- grade 8</td></tr> <tr> <td>○ 65-74% correct answers</td><td>- grade 7</td></tr> <tr> <td>○ 55-64% correct answers</td><td>- grade 6</td></tr> <tr> <td>○ rest of the students – failing grade</td><td>- grade 5</td></tr> </table> <p><u><i>In order to be given a final grade, student must obtain a passing grade from all forms of knowledge testing.</i></u></p>	– short tests / quizzes	20% of the final grade	– written exam	40% of the final grade	– seminar paper and presentation	40% of the final grade	○ 95-100% correct answers	- grade 10	○ 85-94% correct answers	- grade 9	○ 75-84% correct answers	- grade 8	○ 65-74% correct answers	- grade 7	○ 55-64% correct answers	- grade 6	○ rest of the students – failing grade	- grade 5
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○ 65-74% correct answers	- grade 7																		
○ 55-64% correct answers	- grade 6																		
○ rest of the students – failing grade	- grade 5																		

6. Literature	<p>Required:</p> <ul style="list-style-type: none"> – Course Handouts – Harris RE. Epidemiology of chronic disease: a global perspective. The Ohio State University Medical Centre, USA; 2013. – Raffle EA, Muir Gray JA. Screening: Evidence and Practice. Oxford University, USA; 2007. – Rothman KJ, Greenland S, Lash TJ. Modern epidemiology, third edition. Philadelphia: Lippincott Williams & Wilkins; 2008. <p>Additional: <i>(This literature might be helpful to the students who have Bosnian language skills)</i></p> <ul style="list-style-type: none"> – Vorko-Jović A, Strnad M, Rudan I. Epidemiologija hroničnih nezaraznih bolesti. Zagreb: Medicinski fakultet; 2007. – Babuš V. Epidemiološke metode. Zagreb; Medicinska naklada; 2000.
7. Remarks	<p>It is forbidden to bring unauthorized copies of literature to classes!</p> <p>All forms of classes are obligatory. Exercises can be attended only by students who have a proper uniform. Fixing absences from classes is in accordance with applicable legal regulations. Failed or missed quizzes can be re-taken on the final exam if a student wishes so.</p> <p>Consultations are conducted every day in terms of work with students, with prior announcement to the Secretary of the Chair or by e-mail address: epidemiologija@mf.unsa.ba</p>

COURSE PLAN: SCREENING AND EPIDEMIOLOGY OF CHRONIC DISEASES

Week 15.	Form of teaching	Hours
Tuesday	<p>Lecture:</p> <ul style="list-style-type: none"> - Introduction to the epidemiology of mass chronic diseases: - risk factors, trends and distribution in different populations and different population groups. - Concept of prevention and specificity of design of epidemiological studies of massive chronic diseases. Basic concepts of screening and diagnostic tests. <p>Practical work:</p> <ul style="list-style-type: none"> - Developing measures of association and bias on examples of mass chronic disease studies, using the appropriate statistical software. - Practical calculation of intracative and extrinsic values of diagnostic tests and elaboration of the importance of overexposure on examples of screening studies. - The concept and calculation of ROC (Receiver Operating Characteristics) are blamed on the appropriate statistical software. <p>Seminar 1: Division of topics and discussions on selected topics of seminar papers</p>	<p>1</p> <p>3</p> <p>1</p>
Wednesday	<p>Lecture:</p> <ul style="list-style-type: none"> - Epidemiology of cardiovascular diseases and risk factors. Specificity of design of epidemiological studies of cardiovascular diseases (advantages and disadvantages), types and identification of bias. Screening of risk factors. - The concept of risk and methods for assessing the individual risk of cardiovascular disease and their significance. <p>Practical work:</p> <ul style="list-style-type: none"> - Practical elaboration of epi method of cardiovascular diseases, advantages and disadvantages of applied methods, identification of bias on the given examples of published research of cardiovascular diseases. - Practical calculation of individual risk of cardiovascular disease by applying appropriate methods. - Short test / quiz 	<p>2</p> <p>3</p>
Thursday	<p>Lecture:</p> <ul style="list-style-type: none"> - Epidemiology, prevention and control of cancer (lung, breast, cervix, colon, prostate), and identification of risk factors. Screening programs. - Specificity of cancer control and risk factors - registers. <p>Lecture:</p> <ul style="list-style-type: none"> - Epidemiology of diabetes (type I and type II), risk factors and 	<p>1</p> <p>1</p>

	<p>identification of modifying risk factors. Specificity of epi method design in diabetes research. Methods for assessing the individual risk of diabetes.</p> <ul style="list-style-type: none"> - Epidemiology of childhood obesity. <p>Practical work:</p> <ul style="list-style-type: none"> - Practical elaboration of epi method of cancer, advantages and disadvantages of applied methods, identification of bias on the given examples of published research of specific carcinogenic disease. - Practical elaboration of the effectiveness and effectiveness of the screening program on examples of screening studies. <p>Practical work:</p> <ul style="list-style-type: none"> - Practical elaboration of epi methods on the given examples of published research of diabetes and risk factors, advantages and disadvantages of applied methods, types and identification of bias. - Practical calculation of individual risk of diabetes by applying appropriate methods. Calculation and limitation of body mass index -ITM (BMI) calculation. <p>- Short test / quiz</p> <p>Seminar 2: Discussion and discussion of the topics of seminar papers</p>	<p>1</p> <p>1</p> <p>1</p>
Friday	<p>Lecture:</p> <ul style="list-style-type: none"> - Introduction to the epidemiology of other other mass chronic diseases (respiratory, rheumatoid, trauma and injuries, genetic, Alzheimer's disease and mental health disorders. - Presentation of the best student papers - Written exam <p>Practical work:</p> <ul style="list-style-type: none"> - Practical elaboration of the epi method on examples of studies of some of the other chronic diseases. - - The term and calculation of years of life corrected in relation to incapacity (Disabilty Adjusted Life Yers-DALY-). 	<p>1</p> <p>1</p> <p>1</p> <p>2</p>
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

FIFTH YEAR

TENTH SEMESTER (SUMMER)						
Code	Course Title	L	P	S	TCH	ECTS
MFSE 1001	Pediatrics	100	100		200	14
MFSE 1002	Obstetrics and Gynecology	80	120		200	13
MFSE 1003	Oncology				30	2
MFSE 1004-1016	Elective Course 1	10	10		20	1
	TOTAL	178	245	17	450	30

INTERNSHIP (SURGERY)	Total hours: 120 *
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*ECTS Credits and Code will be assigned after completed Clinical Rotation: Internal Medicine (VI study year)

Elective courses:

- MFSE 1004 Prostate Cancer
- MFSE 1008 Rational Laboratory Diagnostics in Clinical Biochemistry
- MFSE 1009 Rehabillitation of Patients with Osteoporosis
- MFSE 1010 Pediatric Ophatlmology
- MFSE 1011 Pathology in Pregnancy
- MFSE 1012 Prenatal Diagnostic
- MFSE 1013 Public Health Aspects of the Diseases in Childhood
- MFSE 1014 Malignant Diseases in Childhood
- MFSE 1015 Flexible Bronchoscopy in Pediatrics Pulmonology
- MFSE 1016 Bivariate and Multivariate Analysis (Biostatistics 2)

Code: MFSE 1001	Course title: PEDIATRICS		
Level: clinical	Study year: V	Semester: X	ECTS: 14
Status: obligatory	Total contact hours: 200		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Edo Hasanbegović, MD PhD; Associate Professor Amina Selimović, MD PhD; Associate Professor Sniježana Hasanbegović, MD PhD; Assistant Professor Feriha Ćatibušić Hadžagić, MD PhD; Assistant Professor Danka Pokrajac, MD PhD; Assistant Professor Hajrija Maksić, MD PhD; Assistant Sabina Terzić, MD PhD; Assistant Emina Hadžimuratović, MD PhD.			
1. Overall aim	The overall aim of the Pediatrics course is to increase knowledge about etiology of diseases in newborn, children and adolescents, pathogenethic processes that contribute diseases' development, basic symptoms and signs, diagnostic methods and interpretation of their results and contemporary principles of prevention and treatment of diseases in children.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Pulmology and alergoimmunology The aim of the Module is to introduce a student with etiology, clinical picture, diagnosis and treatment of upper respiratory tract diseases (rhinitis, tonsilopharyngitis, sinusitis, laryngitis), brochial asthma (allergic and nonallergic nature), hyperreactivity of the bronchitis system, diagnosis and treatment according to GINA, pneumonia depending on the age of the child, pleuropneumonia, pneumothorax, cystic fibrosis, tuberculosis, the most common allergic diseases that occur in pediatric practice, as well as immunological diseases, and basis of flexible bronchoscopy.</p> <p>Module 2. Cardiology The aim of the Module is to familiarize the student with the etiology, pathogenesis, clinical picture, diagnostic and therapeutic capabilities of congenital heart defects, introduce a student with diagnostic procedures in child cardiology, with etiology, clinical picture and therapy of diseases of cardiovascular system, various heart rhythm disturbances and their clinical presentation, ECG characteristics, treatment, and electrostimulation, hypertension characteristics and hypertensive crises in children, as well as cardiac insufficiency.</p> <p>Module 3. Rheumatology The aim of this Module is to introduce a student with etiopathogenesis, clinical picture and therapy of arthritis associated with infection, rheumatic diseases, rheumatoid arthritis, and systemic connective tissue diseases.</p> <p>Module 4. Gastroenterology The aim of this module is to introduce the student with the most common and most important symptoms in gastroenterology and hepatology, with the most important diagnostic procedures in the domain of this pediatric area, the most common diseases of the esophagus, stomach and duodenum, small and large intestine, and especially with inflammatory bowel diseases, diseases of the liver and billiary system, cirrhosis and its</p>		

complications, the specifics of water and electrolyte metabolism and their most common disorders, the basic ingredients of food and energy needs of the child, as well as introducing students with breast feeding and formula feeding in children.

Module 5. Nephrology

The aim of this Module is to familiarize students with basic symptoms and diagnostic procedures used in this field of pediatrics with epidemiology, etiopathogenesis, clinical picture, diagnosis and treatment of urinary infections, urinary system anomalies, neurogenic dysfunction of the lower urinary system, glomerulopathies, with a special focus on acute post-streptococcal glomerulonephritis, as well as nephrotic syndrome, tubulopathies, urinary system stones, acute and chronic renal failure.

Module 6. Neonatology

The aim of the Module is to familiarize students with possible causes of fetal distress, possibilities of antenatal diagnosis, normal transition to extrauterine conditions, principles of neonatal resuscitation, physiological characteristics of newborns, classification by birth weight and gestational age, birth traumas of newborns, their frequency and presentation, causes of respiratory distress in newborns (hyposurfactosis, meconial aspiration, etc), clinical presentation and treatment, as well as with most common diseases in the newborn with special attention to newborn jaundice and neonatal infections.

Module 7. Neurology

The aim of this Module is to introduce a student with basic symptoms and diagnostic procedures used in this area, normal psychomotor development, CNS malformations, neurocutaneous, neurological and behavioral aspects of genetic anomalies and dysmorphic syndromes, bone lesion malformations, with intrauterine, intrapartal and postpartal brain disorders, hydrocephalus, neutraumatic pericerebral collections, cerebral palsy, metabolic diseases, hereditary degenerative diseases, common infectious CNS diseases, parainfective diseases and inflammatory immune diseases, neurological manifestations of systemic diseases, CNS damages and intoxications, vascular CNS disorders, epilepsy and other attacks, paroxysmal non-epileptic disorders, motor neuronal diseases, peripheral nerve disorders, musculoskeletal disorders, disorders of development, pervasive developmental disorders, ADHD etc.

Module 8. Endocrinology

The aim of this Module is to introduce students with factors influencing growth, presentation of growth dynamics and individual developmental stages of the child, complex etiopathogenesis of diabetes mellitus type 1, comorbidities of obese patient with emphasis on pathological tolerance of glucose and its treatment, thyroid disease, hypoparathyroidism, and the therapy of patients with tumors of the hypothalamus-pituitary region.

Module 9. Hematooncology

The aim of this Module is to familiarize students with etiology, classification, clinical picture, diagnosis and therapy of anemia, platelet

	and coagulation disorders, haemophilia with prophylaxis and treatment of patients with developed factor VIII inhibitors, leukemia and most common solid tumors of the child (CNS, neuroblastoma, nephroblastoma, hepatoblastoma, rhabdomyosarcoma), as well as early and late side effects of cytotherapy and the abilities to prevent unwanted effects.
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through the lectures and seminars students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Learn etiology, clinical features, diagnostic procedures and treatment of upper and lower airways, obstructive pulmonary diseases according to GINA protocols, cystic fibrosis, tuberculosis, allergic and immunological diseases. 2. Understand etiology, clinical features, diagnostic procedures and treatment options for different congenital heart anomalies, infections of cardiovascular system, abnormality of heart rhythm, hypertension, including hypertensive crisis as well as heart insufficiency. Learn diagnostic procedures used in pediatric cardiology. 3. Discover etiopathogenesis, clinical features and therapy of infective arthritis, rheumatic diseases, rheumatoid arthritis and connective tissue system diseases. 4. Learn etiology, clinical features, diagnostic procedures and treatment options in gastroenterohepatology. Discover how digestive system maintains water, mineral, and energy balance, and find out the most common disorders. 5. Understand etiology, clinical features, diagnostic procedures and treatment options in child nephrology, including urinary tract infections, urinary system anomalies, neurogenic dysfunction of lower urinary system, glomerulopathies, nephrotic syndrome, tubulopathies, urolithiasis, acute and chronic renal insufficiency. 6. Discover fetal danger, possibilities of antenatal diagnostic options, and normal transition on extra uterine life. Learn principles of neonatal resuscitation, characteristics of neonatal physiology, classification according to birth weight and gestational age. Also learn birth injuries, respiratory distress, syndrome, and other most common diseases in neonatal period with emphasis on neonatal jaundice and infections. 7. Learn basic symptoms, and diagnostic procedures in child neurology, as well as normal psychomotor development, central nervous system and skull malformations, genetic disorders, dysmorphological syndromes. Discover consequences of intrauterine and postpartum disorders on brain, hydrocephaly, nontraumatic pericerebral collections, and cerebral palsy. Learn also metabolic and hereditary degenerative diseases, infections and inflammations of central nervous system, neurological aspects of systemic diseases, injuries, intoxications, CNS vascular anomalies, epileptic and other seizures, diseases of motor neuron, disorders of periphery nerves and

	<p>muscular system, difficulties of development, ADHD etc.</p> <p>8. Understand growth factors, etiopathogenesis of diabetes type 1, obese, hypothyreosis, hypoparathyreoidism, tumors of hypothalamo-hypophyseos region.</p> <p>9. Learn etiology, classification, clinical features, diagnostic procedures and therapy of anemias, platelets diseases and coagulation disorders, hemophillias, leukemias, solid tumors. Discover early and late consequences of cytostatic therapy.</p> <p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"> • Taking of anamnestic data and ability to perform physical exam of the patient • Recognizing symptoms and clinical manifestations of diseases, and integration of signs and symptoms • Using protocols in further diagnostic procedures • Communication skills in order to correctly communicate with patients and their parents according to ethical principles and children rights • Physical exam of respiratory organs, oxygen therapy, parenteral therapy, lungs X ray interpretation, inhalation therapy, spirometry, skin prick tests, sweat test, PPD, examination of sputum, pleural puncture, bronchoscopy. • Physical exam of cardiovascular system, measuring vital signs, lungs and heart X ray interpretation, ECG interpretation, conducting PGE1 therapy, cardiopulmonary resuscitation, basic characteristics of ergometry, echocardiography, 24 hours of ECG and blood pressure holter monitoring, MRI and heart CT, electro stimulation, tilt table test, heart catheterization • Anamnesis, physical exam of gastroenterohepatological system, taking stool for analysis, and interpretation. Rectal exam, nasogastric tube placement, laboratory tests interpretation, abdominal X ray, including use of contrast, basic knowledge of abdominal ultrasound, endoscopic procedures, liver biopsy, CT and MRI. Therapeutic methods: treatment of acute dehydration, food intake during acute diarrhea. • Anamnesis, physical exam of renal patient, interpretation of laboratory, renal functional tests, urology system X ray, i.v. urography, mictional cystourethrography. Knows how and when to perform: specific laboratory, biochemical and other urinary tract tests, ultrasound (and Doppler) of kidneys and bladder, scintigraphy, MCUG, ultrasound cystography, selective renal angiography, CT and MRI, urodynamic tests of lower urinary system, renal biopsy. Therapeutic methods: peritoneal dialysis, hemodialysis. • Suction, Apgar score, bag and mask ventilation, chest compressions, gestational age estimation, use of heater and pulse oxymeter, interpretation of ECG and chest X ray, lavage feeding, principles of neonatal transport, blood gas analysis, intubation, indwelling umbilical venous catheter, exchange transfusion, positive pressure
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	<p>ventilation, thoracic drain insertion, surfactant therapy, mechanical ventilation.</p> <ul style="list-style-type: none"> • Taking neuropediatric history of patient, neurological exam of the neonate, infant, toddler, preschool and school child and adolescent, lumbar puncture, exam plan for child with developmental difficulties and paroxysmal neurological problems. Basic knowledge of brain ultrasound, EEG, EMG, EP registration, neuroimaging techniques, etc. • Taking history of endocrinological patient, physical exam, anthropometric parameters, interpretation of percentile curves, estimation of puberty stadium according to Tanner, use of Prader orchid meter, hand X ray analysis, understanding of mineral and blood gases status, recognizing states of hypo and hyperglycaemia, blood sugar test, application of insulin, measuring body mass index. Basic knowledge of diagnostic methods in endocrinology, growth hormone testing, interpretation of hormonal state of hypophysis, thyroid gland, suprarenal and genital glands, OGIT test, treatment of diabetes type 1. • Taking history and physical exam of hematological patient, lymph nodes palpation, interpretation of laboratory and radiological tests. Basic knowledge of ultrasound of the neck, axillary region, groin, abdomen and pelvis, bone marrow aspiration, bone biopsy, puncture of lymph node, spleen. Cytomorphology of peripheral blood and bone marrow, lumbar puncture, interpretation of myelogram and cytochemistry, immunophenotyping, cytogenetics, blood groups and HLA typing, use of therapeutic protocols, support therapy, intrathecal therapy, transfusion, transplantation.
4. Teaching methods	<p>Lectures: 100 hours Practical work: 100 hours</p>
5. Methods of knowledge assessment and examination	<p>Student knowledge testing will be continuously performed during the term and in the Final exam.</p> <p>Continuous knowledge assessment Continuous knowledge and skills assessment will be carried out through Partial exams (1, 2 and 3) and Practical exams (1, 2 and 3). Partial exams are in a form of written test of Multiple choice question (MCQ) and Extended response question (ERQ).</p> <p>Practical exam 1 It implies an assessment of the acquired skills determined through Modules 1, 2 and 3 (Pulmology and Allergoimmunology, Cardiology, Rheumatology). Evaluation of adopted skills is accomplished through the fulfillment of tasks defined in the check list. Each task carries a certain number of points. The total number of points a student can take in this part of the Continuous Examination is 10. The student must earn at least 5,5 points in order to have the Practical exam 1 deemed passed. The number of points earned is added to the other points when forming the final score.</p>

Partial exam 1

It covers the examination through Modules 1, 2 and 3 (Pulmology and Allergoimmunology, Cardiology, Rheumatology). Partial exam 1 is written exam where the student can earn a maximum of 20 points. To qualify as a passed student, 11 points should be awarded. The awarded number of points is added to the other points when forming the final grade. If a student has not passed the Partial exam, the unqualified material is placed on the Final exam.

Practical exam 2

It implies an assessment of the skills acquired through Modules 4, 5 and 6 (Gastroenterohepatology, Nephrology and Neonatology). Evaluation of adopted skills is accomplished through the fulfillment of tasks defined in the check list. Each task carries a certain number of points. The total number of points a student can take in this part of the Continuous examination is 10. The student must earn at least 5,5 points in order to have the Practice exam 2 deemed passed. The number of points earned is added to the other points when forming the final score.

Partial exam 2

Includes verification of knowledge through Modules 4, 5 and 6 (Gastroenterohepatology, Nephrology and Neonatology). Partial exam 2 is written exam where the student can win a maximum of 25 points. To qualify as a passed student, 13 points should be awarded. The awarded number of points is added to the other points when forming the final grade. If a student has not passed the Partial exam 2, the unqualified material is placed on the Final exam.

Practical exam 3

It implies evaluation of the acquired skills determined through Modules 4, 5, 6 (Neurology, Endocrinology and Hematooncology). Evaluation of adopted skills is accomplished through the fulfillment of tasks defined in the check list. Each task carries a certain number of points. The total number of points a student can take in this part of the Continuous exam is 10. The student must earn at least 5,5 points in order to take the Practical exam 3 considered passed. The number of points earned is added to the other points when forming the final score.

Partial exam 3

It covers the knowledge through Modules 4, 5, 6 (Neurology, Endocrinology and Hematooncology). Partial exam 3 is written exam where the student can win a maximum of 25 points. To qualify as a passed student, 13 points should be awarded. The awarded number of points is added to the other points when forming the final grade. If a student has not passed the Partial exam 3, the unqualified material is placed on the Final exam.

Final exam

If a student has not passed the Practical and Partial exams during the semester, or is dissatisfied with the grade obtained, she/he is a candidate for the Final exam.

	<p>The criterion for taking the theoretical part of the exam is previously completed Practical part of the exam.</p> <p>Repeated and Remedial exam</p> <p>If a student has not passed Practical Exam sections during the semester and any material at the Final exam he / she is candidate for Repeated and Remedial exam. In this case, the skills adopted from any unaddressed Block of Practical exam are evaluated through special check lists when student can score 30 points in total. In order to pass Practical exam student must earn at least 5.5 points on each check list (16.5 points total). Candidates for theoretical part of the Repeated and Remedial exam need to have previously passed practical part of the exam.</p> <p>Final score is formed by summing all the points earned at each form of knowledge checking.</p> <table><tr><th><i>Rating</i></th><th><i>Number of points</i></th><th><i>Description Rating</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	<i>Rating</i>	<i>Number of points</i>	<i>Description Rating</i>	10 (A)	95-100	remarkable success without mistakes or with minor errors	9 (B)	85-94	above average, with some mistakes	8 (C)	75-84	average, with subtle errors	7 (D)	65-74	generally good, but with significant shortcomings	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">- Kliegman R, Stanton B, Geme JSt, Schor N. Nelson Textbook of Pediatrics. 20. ed. Philadelphia: Elsevier; 2015.- eMedicine-Pediatrics; available at: http://emedicine.medscape.com/pediatrics_general <p>Additional</p> <ul style="list-style-type: none">- Mesihović- Dinarević S. i sar. Pedijatrija za studente medicine. Sarajevo: Sa Vart ; 2005.- Mardešić D. Pedijatrija. Zagreb: Školska knjiga, , 2016.- Heljić S. Neonatologija, Sarajevo: Medicinski fakultet Univerziteta u Sarajevu; 2008.- Hasanbegović E. Maligne bolesti dječije dobi. Sarajevo: Planjax; 2010.- Mesihović-Dinarević S, Hasanbegović S. Gojaznost kod djece i omladine problem savremenog doba. Sarajevo: Arka Press; 2010.- Hasanbegović E. Dječija hematologija. Sarajevo: Institut za NIR KCU; 2013.- Hasanbegović E. Hemofilija i Von Willebrandova bolest. Sarajevo: Institut za NIR KCU; 2016.- Kurspahić-Mujčić A, Hadžagić-Ćatibušić F. Klinički i																					

	<p>socijalnomedicinski aspekti cerebralne paralize. Sarajevo: Institut za naučnoistraživački rad i razvoj KCUS; 2015.</p> <p>- Pokrajac D. Infekcije urinarnog sistema u djece. Sarajevo: Medicinski fakultet Univerziteta u Sarajevu; 2018.</p>
7. Remark	<p>All forms of teaching are mandatory.</p> <p>The number of students per assistant can be up to six. Exercises at the Pediatric Clinic CCU Sarajevo can be attended by students with a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations for students will be held from 13 to 14 hours each day, pre-reserved with the teaching staff.</p>

COURSE PLAN: PEDIATRICS

Week 1.	Form of teaching	Hours
Monday	PULMOLOGY AND ALERGOIMMUNOLOGY Lectures: Anatomy, physiology and pathophysiology of the respiratory system of a child. Anomalies of airways. Diseases of upper respiratory airways. Sinusitis. Croup syndrome. Diseases of bronchi. Bronchitis. Practical skills: Anamnesis and physical examination of the upper respiratory tract, interpretation of diagnostic procedures (X ray).	 3 3
Tuesday	Lectures: Pneumonia, pleurpneumonia, pneumothorax. Lung abscessus Asthma and bronchoobstruction. Basis of flexible bronchoscopy. Practical skills: Anamnesis and physical examination in lower respiratory tract diseases, interpretation of diagnostic procedures, history and physical examination in bronchoobstructive conditions, interpretation of diagnostic procedures, spirometry, flow tests, PEF, inhalers, therapy.	 3 3
Wednesday	Lectures: Cystic fibrosis. Tuberculosis. Miliar tuberculosis. Practical skills: Anamnesis and physical examination of cystic fibrosis and tuberculosis, X ray.	 3 3
Thursday	Lectures: Allergology, Immunology and Infectious Diseases. Allergies, types of allergic reactions. Urticaria. Angioedema. Allergies to medicines Immunological diseases (DiGeorge syndrome, Bruton disease, Wiskot-Aldrich syndrome) Practical skills: Anamnesis and physical examination of allergic diseases, recognition of allergy reactions, interpretation of allergy tests and other diagnostic methods, interventions in anaphylaxis.	 3 3
Friday	CARDIOLOGY Lectures: Etiology of congenital heart defects. Fetal circulation. Diagnostic methods in pediatric cardiology. Non cyanotic congenital heart anomalies. Cyanotic anomalies. Practical skills: Anamnesis and physical examination of a child with congenital heart disease. Heart auscultation with differential diagnosis of certain heart defects. Interpretation of ECG and X ray, preparation and implementation of treatment plan for infant with inborn heart anomaly.	 3 3
Week 2.	Form of teaching	Hours

Monday	Lectures: Cardiovascular infections. Subacute bacterial endocarditis. Myocarditis. Pericarditis. Fibroelastosis	3
	Practical skills: Anamnesis and physical examination of a child with cardiological problems, ECG interpretation, introduction of a student with ultrasound of heart, preparation of plan, diagnosis and therapy of a child with cardiovascular infections.	3
Tuesday	Lectures: Heart arrhythmias. Arterial hypertension. Heart failure Cardiomyopathy.	3
	Practical skills: History and physical examination of children with heart rhythm disorders, cardiac auscultation in children with rhythm disorders with Holter ECG and Ergometry diagnostics, Tilt Table Testing, measurement of arterial pressure in children at different ages, Holter TA Anamnesis and physical examination of a child with cardiac insufficiency. Examination, palpation and auscultation of the heart, ECG interpretation, image examination in children's cardiology (X ray, CT, MRI, PET,)	3
Wednesday	RHEUMATOLOGY Lectures: Arthritis associated with infection: Acute rheumatic fever and poststreptococcal reactive arthritis	3
	Practical skills: History and techniques of physical examination of the joints (inspection, palpation, percussion). Introducing students with X ray of joints, ultrasound of joints, and MRI. Anamnesis and physician examination of child with arthritis, interpretation of blood and urine tests, reaction activity testing.	3
Thursday	Lectures: The basic concept of rheumatic diseases in children Chronic idiopathic arthritis Juvenile idiopathic arthritis and SLE Systemic vasculitis: HSP and Kawasaki's disease Arthritis associated with infection.	3
	Practical skills: Interpretation of joints' Xray, preparation of plan and performance of diagnostic and therapeutic procedures in children's rheumatology.	3
Friday	Practical exam 1	3
	Partial exam 1	3
Week 3.	Form of teaching	Hours
Monday	GASTROENTEROHEPATOLOGY Lectures: Symptoms and diagnostic procedures in gastroenterology and hepatology Dysphagia, Regurgitation, Dyspepsia, Nausea and vomiting, Icterus, ascites Obstipation and constipation, Malabsorption, malnutrition, Hidden bleeding from the digestive tract, Laboratory diagnostic, Functional tests in gastroenterology, Endoscopy, US, CT, MRI.	3

	<p>Practical skills: Anamnesis and physical examination of a child with gastrointestinal and hepatic symptoms. Examination of the mucus, skin turgor, rectal examination. Liver and spleen palpation. Overview of the child with diarrhea.</p>	3
Tuesday	<p>Lectures: Gastro-oesophageal reflux, Benign obstruction of the esophagus, Acute and chronic gastroenteritis, Chronic diarrhea, Ulcus disease, Celiac Disease. Ulcerative colitis, M Chron, Jaundice, Acute and chronic hepatitis, Liver cirrhosis.</p> <p>Practical skills: Estimation of dehydration state. Planning of fluid and mineral intake depending on the degree of loss of fluids. Placement of nasogastric probe. Anamnesis and status of a child with liver disease, differential diagnosis.</p>	3 3
Wednesday	<p>Lectures: Specificity of metabolism, Metabolism of water and electrolytes, Volume of body fluids during growth, Electrolyte status of body fluids, Daily water and electrolyte requirements, Pathological losses of water and electrolytes, Dehydration and types of dehydration, Disorders of the acid-base state. Calcium and phosphorus metabolism, Hypocalcemic seizures.</p> <p>Practical skills: Anamnesis and physical examination of the child with dehydration. Estimation of fluid and mineral losses. Fluid and mineral restoration plans. Peroral, enteral and parenteral nutrition.</p>	3 3
Thursday	<p>Lectures: Nutrition and nutritional disorders, Basic food ingredients, Energy needs. Water requirements, Proteins, fats and carbohydrates needs, Minerals requirements, Breast feeding, Chemical composition of the mother's milk Colostrum, Qualitative differences between human and cow's milk, Physiology of lactation, Ablactation, Dystrophy and atrophy, Protein malnutrition, Vitamin deficiencies.</p> <p>Practical skills: Planning of the adequate nutrition in healthy and sick children (enteral and parenteral nutrition) depending of the age of the child History of nutrition and feeding technique. Estimation of body weight growth depending on nutrition mode. Estimation of nutritional status. Placement of nasogastric probe.</p>	3 3
Friday	<p>NEFROLOGY</p> <p>Lectures: Introduction to child nephrology, examination specificities and diagnostic procedures in urinary tract diseases. Urinary tract infections Pediatric aspects of diagnosis and conservative treatment of urinary anomalies. Neurogenic dysfunction of the urinary system, Glomerulonephritis, Nephrotic syndrome (minimal change disease).</p> <p>Practical skills: Taking correctly history of a renal patient. Applying the methods of examination in renal patient (inspection, palpation, lumbar region percussion, auscultation of renal arteries). Analysis and interpretation of urine findings. Interpretation of renal function evaluation tests. Analysis</p>	3 3

	of the native X ray of urinary tract, mictional cystoureterography, intravenous urography and scintigraphic kidney scan. Preparation of a plan and program for examining a child with urinary infection. Preparation of plan and program for evaluation of urinary system abnormalities.	
Week 4.	Form of teaching	Hours
Monday	<p>Lectures: Tubulopaties, Urolithiasis.</p> <p>Practical skills: Preparation of plan and program for evaluation of neurogenic dysfunction of the urinary system in children. Pure intermitent bladder catheterization. Preparation of plan and program for examining a child with glomerulonephritis. Analysis and interpretation of mmunological findings. Preparation of plan and program for examining a child with nephrotic syndrome.</p>	<p>3</p> <p>3</p>
Tuesday	<p>Lectures: Acute renal insufficiency, Chronic renal insufficiency.</p> <p>Practical skills: Preparation of plan and program for examining a child with tubulopathy. Interpretation and analysis of acidbase status, electrolyte and fluid homeostasis disorders. Preparation of a plan and study program for a child with urolithiasis, acute and chronic renal insufficiency. Interpretation and analysis of biochemical blood and urine tests as well as specific tests in patients with urolithiasis. Introducing students with dialysis techniques.</p>	<p>3</p> <p>3</p>
Wednesday	<p>NEONATOLOGY</p> <p>Lectures: (Prenatal and perinatal period): Perinatal period, Preconceptional and periconceptional control, Fetal distress and antenatal diagnosis. Transition to extrauterine conditions, Perinatal asphyxia, Resuscitation of the newborn.</p> <p>Practical skills: Pregnancy history and risk factor identification and conection with the outcome of pregnancy and resuscitation of newborns.</p>	<p>3</p> <p>3</p>
Thursday	<p>Lectures: Classification of newborns according to birth weight and gestational age, Assessment of gestational age, Deviation of fetal growth Newborns - physiological characteristics, Preventive procedures in newborn babies, Premature baby: characteristisc, care, mortality.</p> <p>Practical skills: First examination of a newborn and classification according to birth weight and gestational age.</p>	<p>3</p> <p>3</p>
Friday	<p>Lectures: Birth traumas, Intracranial hemorrhage, Hypoxic-ischemic encephalopathy, Respiratory distress in newborns</p> <ul style="list-style-type: none"> - RDS (Hyposurfactosis) - Transient tachypnea syndrome (TTN) - Meconial aspiration syndrome - Persistent Pulmonary Hypertension (PPHN) - Surgical and other causes of distress 	3

	- Bronchopulmonary Dysplasia (BPD) Practical skills :Pregnancy history and clinical screening of newborns and identification of birth trauma. Application of oxygen therapy and respiratory support, urgent care of respiratory endangered neonates.	3
Week 5.	Form of teaching	Hours
Monday	Lectures: Hematologic disorders in newborns: hemorrhagic disease, anemia, polycythemia, Gastrointestinal disorders in newborns, Newborn jaundice: causes and treatment, Metabolic disorders in newborns, Neonatal convulsions, Diseases of the navel, Viral and bacterial infections: sepsis and neonatal meningitis, Major congenital anomalies Practical skills: Anamnesis of pregnancy and physical examination of a sick child; measures for the treatment of sick newborns in hospital and outhospital facilities.	3 3
Tuesday	Practical exam 2	3
	Partial exam 2	3
Wednesday	NEUROLOGY Lectures: Development of the child, CNS malformations, Neurodependent , diseases and syndromes, Neurological and behavioral aspects of genetic, abnormalities and dysmorphic syndromes. Bone skeletal malformations Neurological consequences of prenatal, perinatal and early postnatal events on brain development, Hydrocephalus, Cerebral palsy. Practical skills: Introduction to child neurology, examination specifics, neuropaediatric history, neurologic examination of neonates, newborns, infants, US brain examination.	3 3
Thursday	Lectures: Metabolic Diseases, Heredodegenerative diseases, Infectious, parainfective and other inflammatory diseases of the CNS of immune origin CNS Injuries and Poisoning, Cerebrovascular Disorders. Practical skills: Biochemical and genetic diagnosis in neurology, lumbar puncture, neuroimageing techniques of the nervous system, neurological overview of preschool and school children.	3 3
Friday	Lectures: Epilepsy and other disorders with seizures, Paroxysmal CNS disorders that are not epileptic. Practical skills: Electroencephalography, activation and provocation method, head-up tilt test.	3 3
Week 6.	Form of teaching	Hours

Monday	Lectures: Motor neuronal diseases, Peripheral nervous system disorders Muscle disorders, Intellectual developmental disorders, normal, late development, speech development disorder, Autism and disease in the spectrum of pervasive developmental disorders, ADHD and associated similar disorders	3
	Practical skills: Electromyoneurography, evoked potentials, psychological scales, scales for detecting developmental disorders	3
Tuesday	ENDOKRINOLOGY Lectures: Growth, Clasification of developmental ages, Puberty disorders Low growth, causes, High growth	3
	Practical skills: Anamnesis and status praesens in patients with growth and puberty disorders. Technique of measuring anthropometric parameters: body height (length), body weight, head circumference, chest circumference, waist circumference, arm range, sitting height. How to use the growth map to estimate current anthropometric parameters. Determination of stage of puberty in girls and boys using Tanner's criteria. Use an orchidometer by Praeder. Analysis and interpretation of hand X ray Performing and interpreting a dynamic test for growth hormone levels by stimulation with insulin hypoglycemia.	3
Wednesday	Lectures: Diabetes mellitus, Hypoglycaemia, Excessive body weight and obesity	3
	Practical skills: History and physical exam of a patient with diabetes (Newly diagnosed and previously diagnosed). Blood glucose measurement technique: capillary and continuous glucose measurement and interpretation of results. Insulin injection with pen and insulin pump. Diabetes patient evaluation: insights into the diary and laboratory findings-interpretation, counseling. The technique of using glucagon. Assessment of nutrition status - body mass index. Anamnesis, status praesens and counseling with obese pediatric patient. OGTT test technique with insulinemia.	3
Thursday	Lectures: Thyroid, Parathyroid gland, Gonads Adrenal gland, Pituitary gland.	4
	Practical skills: History and physical examination of patients with thyroid and adrenal gland disorders. Estimation of the size of thyroid gland. Interpretation of the hormonal status of the thyroid gland. Neonatal screening technique on hypothyroidism. History and status of patients with parathyroid gland disorders. Assessment of the sex of a patient based on external sex organs, possible existence of hypogonadism, analysis of the status of sex hormones. Approach to patient with congenital adrenal hyperplasia, and pituitary diseases.	3

Friday	HEMATOONCOLOGY Lectures: Anemias, Classification according to etiology and . pathophysiology. Sideropenic anemia. Physiological anemia of infants. Megaloblast anemia. Aplastic anemia. Hemolytic anemia. Anemia of chronic infection. Practical skills:. Anamnesis and physical examination of a child with anemia, with special attention to the appearance of skin, mucous membranes, hair, and nails. Interpretation of blood count and differential blood count. Differential diagnosis of anemia. Preparation of a therapeutic plan for the treatment of anemia. Liver and spleen palpation.	3 3
Week 7.	Form of teaching	Hours
Monday	Lectures: Hemostasis disorders, Hemorrhagic diathesis, Platelet diseases Thrombocytopenias, ITP, Thrombocytopathies and thrombastenias, Coagulopathies, Haemophilias. Practical skills: Anamnesis and physical examination of the child with signs of hemorrhagic diathesis. Differential diagnosis of hemorrhagic skin lesions in children with hemorrhagic diathesis. Interpretation of coagulation tests. Preparation and implementation of a child's treatment plan with thrombocytopenia and coagulopathy.	3 3
Tuesday	Lectures: Epidemiology of malignant diseases, Leukemia in children. Lymphoma of childhood. Brain tumors. Neuroblastoma. Wilms tumor. Tumor of the bones. Rhabdomyosarcoma. Liver tumors. Supportive therapy in the treatment of malignant diseases. Pain management. Practical skills: Anamnesis and physical examination of a child with malignant illness. Overview of lymph nodes of the neck, armpits and groin. Liver and spleen palpation. Lymph node pinction, lumbar and bone marrow puncture. Radiological surveys in children's oncology. Preparation of plan and program for treating a child with a malignant illness. Therapeutic approach to pain control. Evaluation of the effect of analgesic therapy from the aspect of pain control and the existence of side effects. Rotation of analgesics.	3 3
Wednesday	Practical exam 3 Partial exam 3	4 3
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 1002	Course title: OBSTETRICS AND GYNECOLOGY		
Level: clinical	Year: V	Semester: X	ECTS credits: 13
Status: obligatory			Total hours: 200
Prerequisites:	According to the Study Regulation		
Lecturers and assistants: Professor Sebija Izetbegović, MD PhD; Assistant Professor Fatima Gavrankapetanović-Smailbegović, MD PhD; Assistant Professor Ejub Bašić, MD PhD; Sanjin Deković, MD MSc; Lana Lačević-Mulahasanović, MD.			
1. Overall aim	The objective of Gynecology and Obstetrics Course is to enable the student, based on his/her understanding of morphology and physiology of female reproductive organs, to identify the most important gynecological conditions, to determine therapy, rehabilitation, early detection and prevention in the field of primary healthcare, and to identify physiological and pathological pregnancy through prenatal and postpartum care, as well as to recognize the basic problems and guidelines related to human reproduction.		
3. Course contents and Learning outcome	GYNECOLOGY WITH GYNECOLOGIC ONCOLOGY Module 1. Anatomy and function of female reproductive organs The aim of the Module it to integrate knowledge from anatomy and physiology of genital system for the purpose of better understanding of female reproductive organs development, differentiation and physiology of menstrual cycle, ovulation, implantation and physiological changes before and during menopause. Module 2. Dysfunctional (abnormal) uterine bleeding The aim of the Module is to introduce students to medical treatment of dysfunctional uterine bleeding, bleeding associated with threatened miscarriage, missed abortion, blighted abortion, hydatid mole, fetal death in utero and residue after abortion. This Module will enable students to gain knowledge on mutual dependence and proper functioning of endocrine glands, diagnostics and treatment, and possible complications of endocrine system in fertile days. Module 3. Inflammatory diseases of reproductive organs, pelvic infections, specific and non-specific inflammation, benign and malign breast tumors The aim of the Module is to introduce students to all ethological factors leading to inflammation, inflammation and exacerbation, consequences and treatment of pelvic inflammatory disease. Students will gain knowledge in the diagnostics of breast diseases and practical diagnostic procedures (breast examination and palpation). Module 4. Disturbance of reproductive organ statics, family planning and assessment of working ability in gynecological conditions The aim of the Module is to introduce students to clinical picture and diagnostics of partial or total uterine (vaginal) prolapse and treatment thereof. This Module will also discuss family planning methods, and the assessment of work ability of patients with gynecological conditions. Module 5. Benign tumors of female genital organs The aim of the Module is to introduce students to benign tumors of female genital organs, their classification, symptomatology, diagnostics and treatment methods.		

Module 6. Malignant tumors of external genital organs

The aim of the Module is to introduce students to malignancies in clitoris, vulva and vagina, diagnostic methods, symptomatology and treatment. The Module will also discuss tumor markers used in diagnostics of malignant female genital organs.

Module 7. Malignant cervical tumors

The aim of the Module is to introduce students to various malignant cervical changes, precancerous changes in the cervix, symptomatology of early and late phases of the disease, diagnostics and treatment methods. Special emphasis will be placed on primary and secondary prevention of cervical cancer.

Module 8. Malignant tumors of the uterine corpus

The aim of the Module is to introduce students to malignant tumors of the uterine corpus, classification, symptomatology, diagnostics and treatment methods.

Module 9. Malignant tumors of the uterine tubes and ovaries and tumor markers in gynecology

The aim of the Module is acquiring knowledge about malignant tumors of the ovaries and uterine tubes, their classification, symptomatology, diagnostics and treatment methods.

Module 10. Palliative care in gynecology

This Module will enable students to gain knowledge about specific aspects of palliative care in gynecological malignancies.

*The skills which student need to **apply in practice (knows and is able to do):***

- The basic skills related to taking anamnesis in gynecological patients
- Physical examination of female genital organs: examination, palpation, speculum examination
- Vaginal swab collection
- PAPA test

*The skills student **need to adopt (to know when and how):***

- Basic ultrasound examination
- Interpretation of ultrasound results
- Interpretation of cytological and patohistological findings
- Types of biopsy: fractional curettage, cervical biopsy
- Microbiological diagnostics
- Palliative care of female patients in terminal phase of disease

Following the course completion the student should adopt the following **attitudes:**

- Good medical practitioner must know the basic methods of physical examination, testing and diagnosing of gynecological conditions.
- Adopting diagnostic criteria helps in evaluating the course of the disease and prognosing disease outcome .
- Rational treatment is based on integration of anamnestic data and physical examination with laboratory and diagnostic procedures.

REPRODUCTIVE MEDICINE

Module 1. Congenital anomalies of female reproductive organs

The aim of the Module is to introduce students to anomalies of vulva, clitoris, and hymen, congenital vaginal and ovarian cysts, duplication of vulva, anomalies of the hymen, labial fusion, anomalies of the clitoris, congenital vaginal cysts. Vaginal anomalies: longitudinal vaginal septum (double vagina), vaginal septum, vaginal atresia, aplasia or vaginal agenesis. Uterine anomalies: aplasia or uterine cervix agenesis, uterus unicornis, uterus arcuatus, septus, bicornis and didelphys.

Module 2. Menstrual cycle and all about premenstrual syndrome (PMS)

The aim of the Module is to introduce students to neuroendocrinology, neurohypophyseal hormones, adenohypophyseal hormones, menstrual cycle regulation, changes to the endometrium during the menstrual cycle, vaginal changes during the menstrual cycle.

Module 3. Puberty (pediatric and adolescent gynecology, amenorrhea)

The aim of the Module is to introduce the student to breast development in girls (by Tanner), menarche, pubertas praecox (premature puberty), pubertas tarda (delayed puberty), to characteristic structure and function of female reproductive organs in the child adolescent age, reproductive organ tumors in the child age, genital system tumors in the child age, differential diagnosis of vaginal bleeding in pre-menarche girls, gynecological problems in adolescence. Through the Module, the student will also get acquainted with the term amenorrhea – physiological and pathological amenorrhea, classification and diagnostics, ovarian amenorrhoea (hypergonadotropic hypogonadism): primary, secondary, chronic anovulations (inhibition of hypothalamic-pituitary-ovarian axis), and with methods of diagnosing amenorrhea: physical examination, determination of hormones (FSH, LH, prolactin, TSH), hormone tests, GnRH test, ultrasound, MRI, HSG, laparoscopy, hysteroscopy, vaginoscopy.

Module 4. Conjugal infertility: definition, causes

The aim of the Module is to introduce the student to the basic disorders and illnesses resulting in infertility, their diagnostics and therapy.

Tubal pathology, anomalies of the uterine, uterine fibroids, endometrial polyps, ovarian pathology (cysts), ovulation disorders (Inhibition of Hypothalamic-Pituitary-Ovarian Axis), idiopathic infertility, male - cause of infertility. Diagnostic therapy.

Module 5. Techniques in assisted human reproduction

The aim of the Module is to introduce the student to methods of assisted human reproduction, predicting ovulation, cryopreservation (embryo and gamete freezing).

Module 6. Polycystic ovary syndrome (PCOS)

The aim of the Module is to introduce students to pathophysiology and characteristics of PCOS, diagnosing and therapy. Students will also get to know: neuroendocrinology – metabolic disorders, intraovarian disorders

(autocrine and paracrine function), extraglandular estrogen production, endocrinology of adipose tissue, PCOS characteristics, diagnostics and therapy.

Module 7. Menopause and perimenopause

The aim of the Module is to introduce the student to endocrinology changes in menopausal and perimenopausal age, and the influence of these changes on cardiovascular and skeletal system, as well as to replacement therapy in involutivity and pathological conditions. Through this Module the student will be presented: endocrine changes during menopause, menopause symptoms, clinical changes in the menopause transition: vasomotor changes, psychological changes and changes in the central nervous system (CNS), atrophic changes, osteoporosis, influence of menopause on cardiovascular system, as well as hormone replacement therapy: breast cancer and hormone replacement therapy, vein thrombosis and hormone replacement therapy, types and methods of hormone replacement therapy application.

Module 8. Methods of hormonal contraception

The aim of the Module is to introduce the student with the basic guidelines to hormonal contraception.

Module 9. Emergency conditions in gynecology

Skills which the student needs to apply in practice (knows and is able to do): to take anamnesis with accurate date on rhythm and duration of menstrual cycle, apply technique of external and internal examination, collect vaginal swabs for purity of the vaginal contents (manner of collecting swabs for Chlamydia, mycoplasma and bacterial vaginosis), collect a swab for cytohormonal status and PAP smear, hormone status in women, family planning.

Skills the student need to adopt (*to know when and how*):

- Endocrine changes during menopause
- Hormone replacement therapy
- 2D and 3D ultrasound examination
- Hysterosalpingography
- Sonohysterosalpingography
- Hysteroscopy
- Laparoscopy
- Vaginoscopy
- Parental Karyogram Test
- Semen analysis
- Insemination
- IVF and Cryopreservation
- ICSI
- Endometrial biopsy
- Densitometry in amenorrhoids and postmenopausal women

Following the course completion the student should adopt the following **attitudes**:

- Based on physical and ultrasound examination, detailed anamnesis on menstrual cycle, establish if the case relate to primary or secondary sterility, infertility, anomalies of female reproductive organs, male sterility or infertile couple

- The examined woman should be properly informed about her condition and refer her to appropriate center for assistance
- Practitioner should have an attitude on proper adolescent development and to understand problems experienced by postmenopausal women.

PERINATOLOGY

Module 1. Fertilization, fecundation, fetal development by month

The aim of the Module is to introduce students to female reproductive physiology and early signs of pregnancy.

Module 2. Delivery, placenta, histology, role and significance

The aim of the Module is to introduce students to histology, role and characteristics of placenta and amniotic fluid, delivery facility, birth forces and birth canal.

Module 3. Delivery, attitudes and keeping a baby

The aim of the Module is to introduce students to external examination of the pregnant woman in the late stage of pregnancy, Leopold-Pelvic maneuvers, and based on external examination to determine position, location and posture of a baby, as well as labor improvement.

The aim of the Module is to introduce students to length of labor, labor stages and complications associated with each stage of labor.

Module 4. Third and fourth stage of labor

The aim of the Module is to introduce students to the most common complications in the third and fourth stage of labor, how to recognize and prevent bleeding with appropriate therapy, prevention of bleeding and atony of the uterus, as well as present the fourth stage of labor, puerperium, complications in puerperium and postpartum contraception.

Module 5. Other labor mechanisms in head presentation (occiput posterior presentation, sinciput presentation, vertex presentation)

The aim of the Module is to introduce students to delayed delivery, causes, and way of recognizing, cardiotocography (CTG) in late pregnancy, and fetal monitoring during delayed delivery. The aim of this Module is to introduce the student with mechanisms of labor in *occiput posterior position*; *breech presentation* – bottom first, the most commonly applied maneuvers and mechanisms, labor mechanism, manual assistance and complications; *asynclitism* – types of deflection attitudes, identification, their influence on the fetal mechanism and in which of them natural birth is impossible; *lateral or transverse lie* – anomalies of fetal posture, diagnostics of disproportions, diagnosis of threatening uterine rupture, and labor completion in neglected transverse lie; disproportion between fetus and pelvis and uterine rupture during pregnancy and labor.

Module 6. Placenta previa – Bleeding in the third trimester of pregnancy

The aim of the Module is to introduce students to etiology, diagnostics, complications and manner of labor completion in placenta previa and threatening placenta rupture, bleeding in the second half of pregnancy.

	<p>Module 7. Diseases during pregnancy</p> <p>The aim of the Module is to introduce students to risks and diseases during pregnancy, diagnostics, prevention and treatment of hypertension, preeclampsia, eclampsia, HELLP syndrome, anemia and urinary tract infections during pregnancy, and to iron deficiency in pregnancy, complications associated with anemia and treatment thereof, as well as to diagnostics related to urinary tract infections, its prevention and treatment. The aim of the Module is to introduce the student to other pathological conditions and diseases in pregnancy: Rh incompatibility, management and completion of such pregnancy, and condition and treatment after termination of pregnancy, types of cytogenetic screening, early determination of blood type and Rh factor in pregnancy, prevention of Rh incompatibility, gestational diabetes (basic clinical picture of gestational diabetes, identification, mandatory diagnostic procedures, complications, and way of pregnancy completion) and viral infections associated with pregnancy having adverse effects on the fetus (varicella, rubella, CMV, HIV, hepatitis B and C), diseases of the heart, lungs and thyroid gland during pregnancy, basic clinical picture of the heart, lung and thyroid gland diseases, identification, mandatory diagnostic procedures, complications and the way of pregnancy completion, antibiotics and vaccination during pregnancy, antibiotics allowed during pregnancy and when vaccination is allowed.</p> <p>Module 8. Emergency conditions in obstetrics</p> <p><i>Skills the student needs to apply in practice (knows and is able to do):</i></p> <ul style="list-style-type: none"> - To properly take anamnesis in pregnancy - Be familiar with techniques related to external examination in pregnancy, measurements, perform internal examination in pregnancy - Determine gestational age and due date, interpretation of CTG findings <p><i>Skills the student needs to adopt (knows when and how):</i></p> <ul style="list-style-type: none"> - Amnioscopy - Ph-meter - Ultrasound examination - Color Doppler ultrasound - 4D ultrasound examination. <p>After studying the course the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - Assessment of normal or pathological pregnancy can be determined based on physical examination of the pregnant woman and auscultation of the heart in infant. - Sick pregnant woman and puerpera with pathological pregnancy should be properly provided for transportation to hospital.
3. Learning methodology	<p>Teaching will include:</p> <ul style="list-style-type: none"> - Lectures: 80 hours - Practical classes: 120 hours

<p>4. Knowledge assessment methods</p>	<p>Student knowledge testing will be continuously performed during the term and in Final exam.</p> <p>Continuous knowledge testing Continuous knowledge testing involves: Partial exam 1, 2 and 3 and Practical exam 1, 2 and 3.</p> <p>Practical exam 1 Practical exam 1 will be taken following the first round of practical education defined within the system of students' circulation - Gynecology with Gynecological Oncology. Evaluation of acquired skills will be performed based on previously completed tasks defined in the check list (check list contains 20 questions). Each task from the list shall be assessed as positive or negative (+/-)</p> <p>Practical exam 2 Practical exam 1 will be taken following the second round of practical teaching defined within the system of students' circulation – Reproductive Medicine. Evaluation of acquired skills will be performed based on previously completed tasks defined in a check list (check list contains 20 questions). Each task from the list shall be assessed as positive or negative (+/-).</p> <p>Practical exam 3 Practical exam 1 will be taken following the third round of practical education defined within the system of students' circulation – Perinatology. Evaluation of acquired skills will be performed based on previously completed tasks defined in the check list (check list contains 20 questions). Each task from the list shall be assessed as positive or negative (+/-).</p> <p>After Practical exam 3, pluses and minuses obtained in practical exams are translated into points. Two positive grades (2+) from the check list are accounted for 1 point and are added to the total number of points scored in all parts of the practical exam. Two negative grades (-2) from the check are accounted as 1 negative point which is deducted from the total number of points scored in all parts of the practical exam.</p> <p>Total number of points which the student may score within this part of continuous knowledge assessment is 30. The student must score at least 16.5 points for the complete practical exam to be considered successfully passed. Total score is added to other scores in determining the final grade.</p> <p>Partial exam 1 Partial exam 1 comprises knowledge assessment from the field of Gynecology with Gynecological Oncology. Partial exam 1 is an written test comprising 40 multiple choice questions (MCQ). Each correct answer to the MCQ carries 0.5 points. Maximum number of points the student may score in this part of the exam is 20.</p> <p>For the exam to be considered successfully passed the student must score 11 points. The total score is added to other scores in determining the final grade. If the student failed in the first patial exam, he/she will retake it at Final exam.</p> <p>Partial exam 2 Partial exam 2 comprises knowledge assessment from the field of Reproductive</p>
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Medicine. Partial exam 2 is an written test comprising 40 MCQ. Each correct answer to the MCQ carries 0.5 points. Maximum number of points the student may score in this part of the exam is 20. For the exam to be considered successfully passed the student must score 11 points. The total score is added to other scores in determining the final grade. If the student failed in the second partial exam, he/she will retake it at Final exam.

Partial exam 3

Partial exam 3 comprises knowledge assessment from the field of Perinatology. Partial exam 3 is an written test comprising 60 MCQ. Each correct answer to the MCQ carries 0.5 points. Maximum number of points the student may score in this part of the exam is 30. For the exam to be considered successfully passed the student must score at least 16.5 points. The total score is added to other scores in determining the final grade. If the student failed in the third partial exam, he/she will retake it at Final exam.

Final exam

If the student fails to pass practical and partial parts of the exam during the semester or is not satisfied with his/her grade he/she will take the Final exam. The condition for taking written part of Final exam is previously successfully passed practical part of the exam.

Repeated exam and Remedial exam

If the student fails to pass practical parts of the exam during the semester and at Final exam, he /she will take them at Repeated exam or at Remedial exam. On that occasion, acquired skills from each failed round of the practical exam is evaluated through special check lists and the student may score the total of 30 points. For the practical exam to be considered successfully passed in each check list the student must score at least 5.5 points (total of 16.5 points).

The condition for taking written part of the Repeated exam or Remedial exam is previously successfully passed practical part of the exam.

If the student fails to pass any partial exams in the Gynecology and Obstetrics course, the written part of Final exam contains 140 MCQ. Each correct answer to the MCQ carries 0.5 points. Student may earn a maximum of 70 points. Minimum number of credits for a successful exam result is 38.5.

Determining final grade

Grade is defined by summing up all credits earned for each type of knowledge testing.

<i>Grade</i>	<i>Points</i>	<i>Grade description</i>
10 (A)	95 -100	Extraordinary achievement without or with minimum mistakes
9(B)	85-94	Above average, with some mistakes
8(C)	75-84	Average, with noticeable mistakes
7(D)	65-74	Good in general, but with significant flaws
6(E)	55 -64	Meet the minimum requirements
5(F, FX)	< 55	Does not meet the minimum requirements

5. Literature	<p>Obligatory:</p> <ul style="list-style-type: none"> – Konishi I, Katabuchi H. (ed). Comprehensive Gynecology and Obstetrics. Springer Nature Switzerland AG; 2018. – Lobo RA, Gershenson DM, Lentz GM. Comprehensive Gynecology, 7th edition. Elsevier Inc; 2017. <p>Adittional:</p> <ul style="list-style-type: none"> – Kuvačić I, Kurjak A, Đelmiš J. i suradnici. Porodništvo. Zagreb: Biblioteka Sveučilišni udžbenici/Medicinska naklada; 2009. – Mladenović D. i sur. Ginekologija i akušerstvo. Beograd: Zavod za udžbenike i nastavna sredstva; 2008. – Balić A. i sar. Perinatologija. Tuzla: Univerzitet u Tuzli; 2007. – Kurjak A. i suradnici. Ginekologija i perinatologija. Zagreb: Tonimir; 2003.
6. Note	<p>All forms of teaching are mandatory.</p> <p>The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform. Distribution of students in groups will be placed on the notice board of the Gynecological Obstetric Clinic of CCU Sarajevo at Jezero and on the web page of the University: www.mf.unsa.ba.</p> <p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is each working day pre-reserved with the teaching staff.</p>

COURSE PLAN: OBSTETRICS AND GYNECOLOGY

Week 7.	Form of teaching	Number of hours
Thursday	Lecture: Anatomy and function of female genital organs. Anatomy, physiology of reproductive system for better understanding of female genital organs and differentiation and physiology of menstrual cycle, ovulation, implantation, physiological changes in postmenopause.	2
	Lecture: Dysfunctional bleeding. Treatment of dysfunctional bleeding, bleeding in threatening miscarriages, missed abortion, blighted abortion, hydatid mole, fetal death in utero and residue after abortion.	2
	Practical classes: Gynecological anamnesis, anatomy and function of genital organs. General examination of the patient, external and internal gynecological examination. Instruments (types of gynecological speculums). Order of internal gynecological examination.	2
Friday	Lecture: Inflammatory diseases of the female genitals, pelvic infections, specific and non-specific inflammations. Ethological factors leading to inflammations in small pelvis. Benign and malignant breast lesions. Breast palpation and classification of benign and malignant breast cancer.	3
	Practical classes: Types of gynecological swabs, collecting Pap smear, a swab for cyto hormonal status, chlamidia, microplasms, HPV, microscopy analysis of all collected smears.	3
Week 8.	Form of teaching	Number of hours
Monday	Lecture: Disturbance in genital organ statics, family planning and assessment of work ability in gynecological conditions. Elements of clinical picture and diagnosing partial and total uterine prolapse, and treatment thereof.	2
	Practical classes: Colposcopy, normal and pathological colposcopy picture. Procedures in changed Pap smear. Internal examination in inflammatory diseases of female genitals. Diagnosis and differential diagnosis.	4
Tuesday	Lecture: Benign tumor of female genital organs (from vulva to ovaries), classifications, simptomatologija, symptomatology and treatment.	3
	Practical classes:	

	Breast palpation and classification of benign and malignant breast lesions. Minimally invasive gynecologic surgery: instruments, biopsy, abrasion, curettage, punctures.	3
Wednesday	<p>Lecture: Malignant neoplasms of external female genital organs. Clitoris, vulvar and vaginal malignancy. Diagnostics, symptomatology and treatment. Tumor markers used in diagnostics of malignant female genital tract tumors.</p> <p>Practical classes: Minimally invasive gynecologic surgery: instruments, biopsy, abrasion, curettage, punctures. Classification of abortion and procedures. Gestational trophoblastic disease and procedures. Types of surgical procedures; abdominal and vaginal. Laparoscopy, hysteroscopy. Monitoring gynecological surgeries on the screen.</p>	3 3
Thursday	<p>Lecture: Malignant cervical tumors. Early malignant cervical changes, premalignant cervical lesions, symptomatology of early and late phase of the disease, diagnostics and treatment. Primary and secondary prevention of cervical cancer.</p> <p>Practical classes: Types of ultrasound machines. Ultrasound in diagnostics of benign and malignant uterine and ovarian cancer. Color Doppler sonography of ovarian tumors (practical education on ultrasound machines).</p>	3 3
Friday	<p>Lecture: Malignant tumors of the uterine corpus, classification, symptomatology, diagnostics and treatment. Malignant tumors of the ovaries and fallopian tube. Tumor markers in gynecology, classification, symptomatology, diagnostics and treatment of malignant tumors.</p> <p>Practical classes: Disturbance of female genital organ statics and types of surgical procedures, urogynecology and urodynamometry. Anamnesis and physical findings of the patient with uterine, ovarian and fallopian tube malignancies. Diagnostic methods. Therapy planning.</p>	3 3
Week 9.	Form of teaching	Number of hours
Monday	<p>Lecture: Palliative care in malignant gynecological conditions.</p> <p>Practical classes: Social status and work ability of the woman. Specific features of palliative care in gynecological condition malignancies.</p> <p>Practical classes: Practical exam 1</p>	2 2 3

Tuesday	Lecture: Congenital anomalies of female reproductive organs. Anomalies of the vulva includes: double vulva, anomalies of the hymen, labia fusion, anomalies of the clitoris, congenital vaginal cysts. Anomalies of the vagina: double vagina, vaginal septum, vaginal atresia, aplasia or cervical agenesis. Anomalies of the uterine: aplasia or cervical agenesis, uterus unicornis, uterus arcuatus, septus, bicornis and didelphys.	3
	Practical classes: Sterility testing course: anamnesis, ovarian function testing (basal temperature), determining optimal conception, vaginal etiology, cervical factor testing, endometrial biopsy. Semen analysis and microscopy specimen monitoring.	2
	Practical classes: Partial exam 1	2
Wednesday	Lecture: Menstrual cycle and PMS. Neuroendocrinology, neurohypophysial hormones, hypophysis, menstrual cycle regulation, endometrial changes during menstrual cycles, vaginal changes during menstrual cycles.	3
	Practical classes: Testing uterine tubes passability, perturbation, HSG, hysteroscopy (monitoring hysteroscopy surgical procedures on the screen).	3
Thursday	Lecture: Puberty – physiology of puberty. Breast development in girls (by Tanner), menarche, pubertas praecox (premature puberty), pubertas tarda (delayed puberty).	2
	Practical classes: Diagnostics of congenital anomalies of the female reproductive tract. Ultrasound in the treatment of sterile marriages.	4
Friday	Lecture: Pediatric and adolescent gynecology: characteristic structure and function of female reproductive organs in the child adolescent age, reproductive organ tumors in the child age, genital system tumors in the child age, differential diagnosis of vaginal bleeding in pre-menarche girls, gynecological problems in adolescence. Amenorrhea, physiological, pathological classification of amenorrhea, peripheral, primary, secondary. Ovarian amenorrhea, chronic anovulations.	2
	Practical classes: Diagnosing amenorrhea: physical examination, determination of hormones, hormone tests, ultrasound, laparoscopy, hysteroscopy, vaginoscopy.	4
Week 10.	Form of teaching	Number of hours

Monday	Lecture: Emergency conditions in gynecology.	2
	Practical classes: Techniques in assisted human reproduction: follicular puncture, IVF, cryopreservation (embryo and gamete freezing).	4
Tuesday	Lecture: Techniques in assisted human reproduction: assisted reproduction methods, predicting ovulation, cryopreservation (embryo and gamete freezing).	2
	Practical classes: Family planning, contraceptive methods.	4
Wednesday	Lecture: Marital infertility: definition, causes. Tubal pathology, anomalies of the uterine, uterine fibroids, endometrial polyps, ovarian pathology (cysts), ovulation disorders (Inhibition of Hypothalamic-Pituitary-Ovarian Axis), idiopathic infertility, male - cause of infertility. Diagnostic therapy.	2
	Practical classes: Pediatric and adolescent gynecology. Characteristic structure and function of female reproductive organs in the child adolescent age. Menstrual cycle irregularities.	4
Thursday	Lecture: Polycystic ovary syndrome. Pathophysiology of PCOS. Neuroendocrinology -Metabolic Syndrome. Intraovarian disorders (autocrine and paracrine function). Extraglandular estrogen production. Endocrinology of adipose tissue. PCOS characteristics. Diagnostics and therapy.	2
	Practical classes: Menopause and perimenopause. Endocrine changes during menopause. Menopause symptoms. Osteoporosis - densitometry.	4
Friday	Lecture: Menopause and perimenopause. Endocrine changes during menopause: gonadotropins, ovarian steroids. Menopause symptoms, clinical changes in the menopause transition: vasomotor changes, psychological changes and changes in the central nervous system (CNS), atrophic changes.	2
	Practical classes: Hormonal tests. Hormone replacement therapy during menopause and perimenopause. Polycystic ovary syndrome, pathophysiology, diagnostics and therapy.	4
Week 11.	Form of teaching	Number of hours

Monday	Lecture: Osteoporosis. Influence of menopause on cardiovascular system. Hormone replacement therapy: breast cancer and hormone replacement therapy. Endometrial cancer and hormone replacement therapy. Vein thrombosis and hormonal replacement therapy and administration of hormonal replacement therapy. Hormonal contraception	2
	Practical exam 2 (Monday after the lecture)	3
Tuesday	Lecture: Fertilization, fecundation, fetal development by month. Early signs of pregnancy	2
	Practical classes: Clinical and laboratory characteristics of osteoporosis. Therapeutic approach: indications and contraindications.	2
	Practical classes: Partial exam 2 (Monday after the lecture)	2
Wednesday	Lecture: Obstetric anamnesis and general examination. Anatomy and physiology of small pelvis and abdominal cavity.	2
	Lecture: Placenta, histological constitution, role and significance. Amniotic sac, amniotic fluid. Delivery facility, birth forces and birth canal. Length of labor, labor stages and complications	2
	Practical classes: External obstetric examination (inspection, palpation, auscultation, external measuring of the pelvic). Internal obstetric examination. Partogram.	2
Thursday	Lecture: Position, fetal situs, presentation and fetal habitus. Mechanisms of labor in cephalic presentation. External examination of pregnant woman in the late stage of pregnancy, Leopold's Maneuvers and how to determine position of a newborn based on external examination, position, location and posture of a baby, and labor improvement.	2
	Practical classes: External obstetric examination (inspection, palpation, auscultation, external measuring of the pelvic). Internal obstetric examination. Partogram.	4

Friday	<p>Lecture: Other labor mechanisms in head presentation (occiput posterior presentation, sinciput presentation, vertex presentation) Monitoring of fetus during pregnancy and labor. Delay of fetus in pelvis, causes, identification, CTG in late pregnancy.</p> <p>Practical classes: Labor and stages of labor. Factors of labor.</p>	<p>2</p> <p>4</p>
Week 12.	Form of teaching	Number of hours
Monday	<p>Lecture: Third stage of labor. Prevention of bleeding and uterine atony. Fourth stage of labor. Puerperium, complications in puerperium and postpartal contraception. The most frequent complications in third and fourth stage of labor, prevention, detection of bleeding and treatment.</p> <p>Practical classes: Third delivery stage and contemporary management of the third delivery stage. Signs of placenta previa. Episiotomy. Obstetric injuries to the soft tissues of the birth canal and their treatment.</p>	<p>4</p> <p>2</p>
Tuesday	<p>Lecture: Breech presentation. Labor mechanism, manual assistance and complications. Mechanisms of breech presentation. The most commonly used maneuvers and mechanisms. Management of breech presentation.</p> <p>Practical classes: Inducing and speeding up labor. Abnormal cephalic presentation. Transverse lie, surgeries in obstetrics, manual removal of the placenta, exploration of the uterine cavity, vacuum extractor.</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: Asynclitic presentation. Deflection presentation. Types of deflection, their identification and influence on labor mechanism, and which type makes normal labor impossible.</p> <p>Practical classes: Procedure in atonic postpartum hemorrhage, reanimation of puerpera, hemorrhage in the second half of pregnancy.</p>	<p>2</p> <p>4</p>
Thursday	<p>Lecture: Transverse lie of fetus. Disproportion between newborn and pelvis. Uterine rupture during pregnancy and labor. Fetal position anomalies, diagnostics, diagnostics of disproportion, threatening uterine rupture, and labor completion in neglected transverse lie.</p> <p>Practical classes: Uterotonics. Asepsis and antisepsis in obstetrics. Repeat elements of external obstetric examination.</p>	<p>3</p> <p>3</p>

Friday	Lecture: Placenta previa. Placental abruption. Hemorrhage in the second half of pregnancy. Ethiology, diagnostics, complications and completion of pregnancy in the above stated cases.	2
	Practical classes: Breech presentation and labor management. Management of twin labors. Internal turning.	4
Week 13.	Form of teaching	Number of hours
Monday	Lecture: Hypertension. Preeclampsia, eclampsia, HELLP syndrome. Risks of hypertension during pregnancy, prevention, and treatment.	2
	Practical classes: Forceps. Caesarean section (Sectio caesarea). Embryotomy.	4
Tuesday	Lecture: Anemia in pregnancy (iron deficit during pregnancy, diagnostics, treatment, prevention). Urinary tract infections in pregnancy, diagnostics of urinary tract infections, complications, treatment, prevention). Rh incompatibility. Cytogenetic screening (prevention of Rh incompatibility by early determination of blood type and Rh factor of all pregnant women, conditions after termination of pregnancy, information about clinical picture of Rh incompatibility, management of such pregnancy, late amniocentesis, manner of labor completion, types of cytogenetic screening, when to apply it and in which patients and RAC).	3
	Practical classes: Intensive monitoring of fetus during labor. Amnioscopy, Ph- meter principle. Cardiotocography.	3
Wednesday	Lecture: Gestational diabetes. Basic clinical picture of gestational diabetes, identification, mandatory diagnostic procedures, complications and completion of pregnancy. Viral infections in pregnant woman. The most common viral infections associated with pregnant women having adverse effects on the fetus (varicella, rubella, CMV, HIV, hepatitis B and C). Antibiotics and vaccination during pregnancy.	3
	Practical classes: Ultrasound in perinatology. Diagnostics of congenital anomalies of fetus. Ultrasound parameters of congenital anomalies.	3
Thursday	Lecture: Heart, lungs and thyroid gland diseases. Basic clinical picture of the heart, lung and thyroid gland diseases, identification, mandatory diagnostic procedures, complications and pregnancy completion. Emergency conditions in obstetrics.	2
	Practical classes:	4

	Early and late amniocentesis.	
Friday	Practical classes: EPH gestosis, gestational diabetes, anemia, urinary tract infections. Presentation of pregnant women at Department of Pathology. Visit to Pueperium and Neonatal Department.	6
Week 14.	Form of teaching	Number of hours
Monday	Practical classes: Partial exam	2
	Practical classes: Practical exam 3	4
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September examination term)	

Code: MFSE 1003	Subject title: ONCOLOGY		
Level: clinical	Year: V	Semester: X	ECTS: 2
Status: obligatory	Total contact hours: 30		
Prerequisites	According to the Study Regulation		
Lecturers and assistants: Professor Semir Bešlija, MD PhD; Assistant Professor Timur Cerić, MD PhD; Senior ass. Anes Pašić, MD MSc			
1. Overall aim	The purpose of the course is to train the future doctors to be an integral part of multidisciplinary care of an oncological patient, by being trained and possessing the knowledge to be able to: <ul style="list-style-type: none">– recognize symptoms and signs of the tumor– understand and accurately point the patient in search programs for detecting tumors or metastasis and procedure for determining the stage and classification of manifested tumor– recognize elements needed for assessment of disease prognosis and defining the aim of the treatment– know the modalities of malignant tumor treatment– actively participate in the monitoring and control of patients during and after the end of treatment, evaluate its outcome and its impact on survival and quality of life– recognize and participate in treatment of adverse/ side effects of oncological treatment– know and to conduct a symptomatic and palliative treatment on oncological patients– adequately communicate with onological patient and perform medical practice in accordance with ethic principals of medicine and rights of the patients.		
3. Course contents	Through the course, the student should constructively synthesize the knowledge of basic sciences related to the malignant tumor and gain the following specific knowledge: Module 1. Introduction, definition, significance and branches of Oncology Module aim: Acquiring knowledge and skills on importance and ways of fighting against malignant tumors. Module 2. Epidemiology of malignant tumors Module aim: Acquiring information on extent of the malignant tumor problem and modern knowledge and risk factor for development of malignant disease. Module 3. Etiology of the tumor, pathohistological types of the most common malignant diseases Module aim: Acquiring knowledge on causes and ways of tumor development, etiology and pathogenesis of the tumor, as well as pathohistological and clinical classification of tumors. Module 4. Tumor structure, tumor nomenclature, molecular basis of malignancy Module aim: Acquiring knowledge on molecular basis of malignant		

	<p>transformation and morphological and functional characteristics of tumors, regulation of cell cycles, growth factors, receptors of growth factors, molecules for signal transport, nuclear receptors, transcription factors, oncogenes.</p> <p>Module 5. Clinical picture of the tumor Module aim: Familiarize yourself with the clinical presentation of the most common malignant diseases, symptomatology and some atypical clinical presentations (paraneoplastic syndromes).</p> <p>Module 6. Diagnosis of tumors Module aim: Familiarize yourself with efficient and rational usage of diagnostic methods in oncology, determination of disease stage, early detection of malignant tumors (screening for breast cancer, cervix carcinoma, colorectal carcinoma and prostate cancer).</p> <p>Module 7. Basic principles of treatment of malignant tumors Module aim: Acquiring knowledge on basic methods of treatment of malignant tumors, specific types of oncological treatment: radio therapy, chemotherapy, hormonal therapy, biological therapy, immune therapy, surgery.</p> <p>Module 8. Complications of anti-tumor therapy Module aim: To enable the student to recognize and treat the most important side effects of oncological therapy. Nausea and vomiting, bone marrow injury, cardio toxicity, pulmonary toxicity, nephro toxicity, dermatological toxicity, sexual dysfunction, genetic defects and teratogenic effects, secondary malignancies.</p> <p>Module 9. Emergency conditions in oncology Module aim: Train the student to recognize and treat the most significant urgent conditions in oncology including spinal cord compression, upper hollow vein syndrome, hypercalcemia and febrile neutropenia.</p> <p>Module 10. Palliative care of oncological patients Module aim: Understanding the significance of palliative care of oncological patients and mastering its most significant components: pain management, nutrition of oncological patients, constipation, weakness and fatigue, lymph edema.</p>
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<p>3. Learning outcomes</p>	<p>Through the class the student should acquire following skills:</p> <p><i>Skills which student should know to practically perform are:</i></p> <ul style="list-style-type: none"> – physical examination of patients, physical examination methods to detect the existence of tumors and its manifestations – external inspection and inspection of available cavities (especially oral cavity and pharynx) – palpation (especially lymph nodes, breasts, liver and spleen), percussion, auscultation – with anamnestic and physical examination methods notices and recognizes the existence of side effects of oncological therapy (dermatitis, mucositis, signs of infection, hemorrhage, pneumonitis) and take the necessary initial diagnostic and therapeutic measures – notices and recognizes emergency conditions in oncology by anamnestic and physical examination (upper hollow vein syndrome, medullary spinal compression, hypercalcemia, febrile neutropenia, surgical and urological emergency) and take the necessary initial therapeutic measures – recognizes and determines the stage of pathological conditions caused or related to malignant disease, which are in need for palliative care and treatment – carries out the necessary treatment: pain management, nausea and vomiting, general weakness, eating disorders <p>Through the course the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> – Malignant tumors are successfully treated in great number of cases and they are not always representing an incurable condition with fatal ending. – Great number of malignant tumors can be prevented by avoiding or reducing the exposure to carcinogenic materials, with healthy life style, and some with immunization. – It is extremely important to recognize the tumor in its early stage, because the treatment outcome depends directly on it. Thus, we must insist on preventive examinations (screening) for tumors which are defined by international recommendations, but also by recognizing the signs and symptoms of malignant disease. – Palliative care and treatment is an important part of overall approach of treatment of patients with malignant tumor, for which an adequate conditions and knowledge of medical professionals should be acquired – It is important to respect and enforce the legal obligations of reporting malignant tumors, as it provides an insight into their frequency, monitoring and study of their temporal, spatial and population variations – Oncological patients may have signs, symptoms and conditions of other diseases that are not related to the tumor, and which may require an adequate, and sometimes an urgent diagnostic and therapeutic measures.
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4. Teaching methods	Teaching of this subjects will take place through: – Lectures: 10 hours – Practical work: 20 hours															
5. Methods of knowledge assessment	<p>Assessment of ONCOLOGY knowledge will be performed on a continuous basis.</p> <p>Continuous assessment includes Practical exam and Partial exam.</p> <p>Practical exam Practical exam includes demonstrating knowledge and skills of the named modules on a, for a student, new patient diagnosed with malignant tumor. During the exam the following is graded: taking anamnesis and approach to the patient (0-4 points), physical examination (0-4 points), diagnostic treatment-plan of required examinations and interpretation of the findings (0-4 points), therapy plan (0-4 points) and symptomatic and supportive therapy (0-4 points). The maximum number of points from the practical exam is 20. The minimum number of points for passing grade is 11.</p> <p>Partial exam Partial exam is in form of written test and it contains 20 questions. Each question brings 0-4 points. Maximal number of points is 80, minimal number of points needed to pass is 45. Within the anticipated number of hours, the form of continuous examination of the knowledge will be held (partial examination and practical exam).</p> <p>Final exam If the student have not passed the practical or partial exam during the semester or if he is unsatisfied with its final grade, he may take the Final exam. The condition for passing the written part of the Final examination is previously passed the Practical exam.</p> <p>Repeated and Remedial exam If the student did not pass same parts of exam during the semester and on the Final exam, failed parts he can take on Repeated or Remedial exam.</p> <p>Forming of the final grade The grade is formed by adding all won points for each form of knowledge testing.</p> <table><tr><th>Grade</th><th>Number of points</th><th>Grade description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr></table>	Grade	Number of points	Grade description	10 (A)	95-100	remarkable success without mistakes or with minor errors	9 (B)	85-94	above average, with some mistakes	8 (C)	75-84	average, with subtle errors	7 (D)	65-74	generally good, but with significant shortcomings
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7 (D)	65-74	generally good, but with significant shortcomings														

	6 (E)	55- 64	meets the minimum criteria
	5 (F, FX)	< 55	does not meet the minimum criteria
6. Lectures	Recommended: – Kantarjian H, Wolff R. The MD Anderson Manual of Medical Oncology, Third Edition. New York - Chicago: McGraw Hill Education; 2016. Additional: – Bešlija S, Vrbanec D. Medicinska/Internistička onkologija. Sarajevo: Med.fakultet Univeziteta Sarajevo; 2014.		
7. Remark	All forms of teaching are mandatory. Lectures will be held at the Clinical Center of the University of Sarajevo, and exercises at the Oncology Clinic Clinical Center University of Sarajevo. The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations. Consultation period for students is each working day, pre-reserved with the teaching staff.		

SUBJECT PLAN: ONCOLOGY

Week 14.	Form of teaching	Number of hours
Tuesday	<p>Lecture: Introduction, definition, significance and branches of oncology. Epidemiology of malignant tumors. Tumor structure, nomenclature of tumors, morphological, functional, biochemistry, genetics characteristics of malignant tumors.</p> <p>Exercises: Gynecology tumors. Carcinoma of the cervix, endometrial carcinoma, ovarian carcinoma. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy. Brain tumors. Brain tumors, spinal canal tumors. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy.</p>	<p>2</p> <p>4</p>
Wednesday	<p>Lecture: Molecular basis of the malignancy: regulation of cell cycles, growth factors, receptors of growth factors, molecules for signal transmission, nuclear receptors, transcription factors, oncogenes. Etiology and pathogenesis of tumors.</p> <p>Exercises: Head and neck tumors. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy. Lung tumors. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy.</p>	<p>2</p> <p>4</p>

Thursday	Lecture: Pathohistological and clinical classifications of tumors. Diagnosis of tumors, determining the stage of the disease, early detection of malignant tumors (screening for breast cancer, cervix carcinoma, colorectal carcinoma and prostate carcinoma). Clinical picture and basic principles of treatment of malignant tumors.	2
	Exercises: Breast cancer. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy.	4
Friday	Lecture: Specific types of oncological treatment: chemotherapy, hormonal therapy, immune therapy. Complications of anti-tumor therapy: nausea and vomiting, bone marrow injury, cardio toxicity, pulmonary toxicity, nephrotoxicity, dermatological toxicity, sexual dysfunction, genetic defects and teratogenic effects, secondary malignancies. Emergency conditions in oncology: including spinal cord compression, upper hollow vein syndrome, hypercalcemia. Palliative care of oncological patients: pain management, nutrition of oncology patients, constipation, weakness and fatigue, lymph edema.	3
	Exercises: Tumors of the GI tract. Tumors of the colon, tumors of the stomach, other GI tumors. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy. Tumors of the genitourinary tract. Prostate cancer, urinary bladder cancer, testicular cancer. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical examination, interpretation of findings, planning the specific supportive and symptomatic therapy.	3
Week 15.	Form of teaching	Number of hours
Monday	Partial exam	1
	Exercises: Sarcomas. Case study, observation and analysis of diagnostic approach. Consideration and demonstration of therapeutic approach, notice of side effects of the treatment, consideration of symptomatic and supportive therapy. Individual taking of anamnesis, physical	3

	examination, interpretation of findings, planning the specific supportive and symptomatic therapy. Practical exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September examination term)	

Code: MFSE 1004		Subject title: PROSTATE CANCER	
Level: clinical	Year: V	Semestar: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Mustafa Hiroš, MD PhD; Professor Damir Aganović, MD PhD			
1. Overall aim	The overall aim is to introduce a student with prostate cancer, leading male cancer, basic knowledge of natural history and biological behavior, stages of illness, treatment modalities and prognosis.		
2. Course contents	<p>Through the course the student will adopt the following knowledge:</p> <p>Module 1. Epidemiology, pathology and pathogenesis of prostate cancer The aim of the Module is to provide students with the knowledge necessary to identify and name basic prostate gland anatomic zones including locations where prostate cancer develops, describe the physiological role of the prostate - "what does the prostate work for"and describe the epidemiological characteristics of prostate cancer.</p> <p>Module 2. Nutrition, lifestyle, clinical presentation, stage of disease The aim of the Module is to provide students with the knowledge of risk factors affecting the appearance of prostate cancer (age, race, familial history, Western nutrition, obesity) as well as that prostate cancer is elevated in relation to the Gleason system, which is the prognostic factor.</p> <p>Module 3. Diagnosis, digitorectal examination (DRE), prostate specific antigen, transrectal ultrasound examination (TRUS), MR spectrometry, biopsy The aim of this Module is to introduce student with understanding very controversial peculiarities of using the serum prostate specific antigen (PSA) as a means to detect prostate cancer, with signs and symptoms of prostate cancer, natural history and the common pattern of progression of prostate cancer and the main components in the stages of prostate cancer,</p> <p>Module 4. Treatment of local and high-risk prostate cancer The aim of this Module is to introduce student with treatment options of localized and metastatic prostate cancer, when prostate cancer is not necessary to treat, to realize that radical prostatectomy probably offers the best prospect for long-term treatment, but also that it can cause sexual dysfunction and incontinence, and that external radiotherapy may be curative, but also associated with possible complications on the bladder and rectum.</p> <p>Module 5. Treatment of metastatic prostate cancer, active surveillance - waiting treatment and prostate cancer screening The goal of the Module is to inform the student that a metastatic prostate cancer is characterized by a positive bone scar and / or the presence of soft tissue and organ metastases, when PSA is usually above 50 mg / ml, as</p>		

	<p>well as that the treatment is usually an androgenic ablation with a therapeutic response in PSA reduction and clinical progress as long as the androgen-insensitive cells develop. The student will learn that prostate cancer is diagnosed on the basis of a rise in serum PSA value and subsequent research, that a transrectal-ultrasound-led biopsy is necessary to confirm the diagnosis, the MRI may provide information on the local status, while scintigraphy of the skeleton identifies bone metastases.</p>
3. Learning outcomes	<p>Through the course the student will acquire the following skills:</p> <p><i>Skills that should be practically performed (knows how to do them):</i></p> <ul style="list-style-type: none"> - perform physical examinations - perform digito-rectal examinations <p><i>Skills to know (know how and when):</i></p> <ul style="list-style-type: none"> - making the difference between chronic, granulomatous prostatitis, benign prostatic hyperplasia (BPH) and prostate cancer - interpretation of serum prostate specific antigen (PSA), free / total PSA ratio - knowledge and planning of specific diagnostic methods used in diagnosis of prostatic carcinoma (transrectal ultrasound - TRUS, CT and MRI scanning, radionuclide bone scan, transrectal ultrasound - led prostate biopsy) - periprostatic infiltration of local anesthetic - interpret the Vienna nomogram - knowledge of treatment methods - radical retropubic prostatectomy, palliative transurethral resection of the prostate, two-sided orchiectomy - interpret prognostic tables and nomograms.
4. Learning Methods	<p>Teaching will be conducted through:</p> <ul style="list-style-type: none"> - Lectures: 10 hours - Seminar: 5 hours - Practical work: 15 hours
5. Knowledge Assessment Methods	<p>Student knowledge checking will be performed continuously during the semester and as a Final exam.</p> <p>Continuous knowledge testing Knowledge checking will be performed continuously during the scheduled lessons and exercises, as well as on Practical, Partial and Final Exam.</p> <p>Practical Exam Practical exam involves assessing the acquired skills and acquired knowledge processed through all modules. Evaluation is performed through the fulfillment of the tasks defined in the <i>check lists</i>. <i>The check list</i> consists of a total of five tasks, of which three clinical vignettes, one assignment from each module. Each task carries a total of 6 points. Student total may win a maximum of 30 points. To qualify as a passed Practical exam, a student must score at least 17 points. The awarded number of points is added to the other points when forming the final grade.</p>

Partial exam

Partial exam implies one clinical vignette or *case report*.

The student gets a total of 4 *case reporta* with defined tasks. Tasks are problem-oriented. The total student can win a maximum of 20 points or 5 points from each *Case report*. To qualify as a passed an exam, a student must earn at least 11 points.

Final exam

Final exam implies an oral examination of knowledge. The condition for passing the final examination is previously passed Practical exam. If a student has not passed a Practical Exam, checking the acquired knowledge and skills will be done within the first part of Final exam.

Oral Verification Means

The final exam is an oral exam on the basis of 10 selected exam questions printed on the exam card.

The number of questions on the card is sorted by domains as follows:

- Module 1 - 2 questions
- Module 2 - 2 questions
- Module 3 - 2 questions
- Module 4 - 2 questions
- Module 5 - 2 questions

Each correct answer brings 1 to 5 points.

The maximum number of points a candidate can win on the final exam is 50 (fifty). To qualify for the exam, the candidate must win at least 28 points.

The number of points awarded is added to the other points and forms the final grade.

Repeated and Remedial exams

Repeated and Remedial exams are conducted according to the previously defined criteria of the Final exam.

Creating a final grade

The total number of points earned, obtained through all forms of knowledge testing, forms the final grade:

Evaluation	Number of points	Description of rating
10 (A)	95-100	exceptional success without mistakes or with minor errors
9 (B)	85-94	above the average, with some mistake
8 (C)	75-84	average, with noticeable mistakes
7 (D)	65-74	generally good but with significant disadvantages
6 (E)	55- 64	meets the minimum criteria

	5 (F,FX)	< 55	does not meet the minimum criteria	
6. Literature	<p>Recommended:</p> <ul style="list-style-type: none"> – European Association of Urology, EAU Quidelines, 2014.Prostate Cancer, www.uroweb.org – American Urological Association, AUA, Quidelines, 2014. Prostate cancer, www.auanet.org/education – McDougal W, Wein A, Kavoussi L, Novick A, Partin A, Craig Peters C, Ramchandani P. Campbell-Walsh Urology, 10th edition Review (1st ed.). Saunders; 2011. <p>Additional:</p> <ul style="list-style-type: none"> – Cohen JS. Prostate Cancer Breakthroughs : New Tests, New Treatments, Better Options: A Step-by-Step Guide to Cutting-Edge Diagnostic Tests and 12 Medically-Proven Treatments (1st ed.). Oceansong Publishing; 2014. – Marković V. Karcinom prostate. Velarta; 2007. – Samija M. Rak prostate. Zagreb: Medicinska naklada; 2007. 			
7. Note	<p>All forms of teaching are mandatory.</p> <p>The number of students per assistant can be up to six. Exercises at the Clinic for Urology CCU Sarajevo can be attended by students with a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations for students will be held from 13 to 14 hours each day, with a prior announcement to the teaching professor at e-mail: mustafa.hiros@mf.unsa.ba</p>			

PLAN OF SUBJECT: PROSTATE CANCER

Week 15.	Form of teaching	Hours
Tuesday	Lecture: Epidemiology and Ethiopathogenesis of Prostate Cancer. Clinical Presentation of Prostate Cancer.	3
	Exercises: Cabinet type, by schedule, DRE on phantom, outpatient examinations, digital examination, differential palpatory diagnosis, presentation of seminar papers.	3
Wednesday	Lectures: Diagnostic modalities of prostate cancer, biopsy and interpretation of pathohistological findings, prognostic indicators.	3
	Exercises: Cabinet type, ambulatory, practical demonstration of transrectal ultrasound examination, transrectal ultrasound-guided prostate biopsy.	2
Thursday	Lectures: Treatment modalities of prostate cancer.	2
	Exercises: Cabinet type, presentation in the operating room, palliative endoscopic procedures and radical surgical treatments.	3
Friday	Practical exam	2
	Partial exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 1008		Course title: RATIONAL LABORATORY DIAGNOSTICS IN CLINICAL BIOCHEMISTRY	
Level: clinical	Study year: V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study regulation		
Lecturers: Associate Professor Sabaheta Hasić, MD PhD; Associate Professor Emina Kiseljaković, MD PhD; Associate Professor Radivoj Jadrić, MD PhD; Assistant Lejla Alić, MD; Assistant Amila Kulo, MD			
1. Overall aim	The aim of the “Rational laboratory testing in clinical biochemistry” course is the learning of students how to apply the rational approach to laboratory test ordering in diagnosis, monitoring and outcome of disease.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Strategy of rational laboratory testing Strategy of rational laboratory testing based on test selection focused on a specific clinical issue. Guidelines for the diagnosis of hepatobiliary tract and pancreatic disease.</p> <p>Module 2. Algorithm based clinical decision for safety reduction of laboratory tests ordering Proposed diagnostic algorithms and guidelines for rational approach to laboratory diagnostics of patients in the emergency department. Guidelines for the classification acid-base balance disorders, diagnosis and monitoring of diabetes, acute coronary syndrome.</p> <p>Module 3. Request form in laboratory ordering Laboratory test ordering, need for systematic approach in laboratory ordering, patient preparation before laboratory testing. Guidelines for the renal disease and acute abdominal pain laboratory testing.</p> <p>Module 4. Rationalization of laboratory tests ordering in primary health care Guidelines for the laboratory testing in primary health care; Guidelines for the laboratory testing and diagnostics of thyroid disease anemia.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>On successful completion of this course students will be able:</p> <ul style="list-style-type: none">– to identify factors contributing to laboratory overutilization– to avoid an inappropriate test – ordering behavior and application of rational approach to laboratory ordering <p><i>Through the lectures the students will gain following knowledge and competences:</i> Student will be competent to make clinical decision by ordering of necessary laboratory tests according to algorithms and guidelines.</p> <p><i>Through the practical laboratory work students will acquire following skills:</i></p>		

	<ul style="list-style-type: none">- to identify relevant symptoms and clinical signs ascertained by examination- to make a strategy for performing appropriate laboratory diagnostics and to avoid overutilization- to select appropriate sample for laboratory analysis- to solve diagnostic algorithms (hepatobiliar and pancreas disease; kidney disease; acute abdomen; acute coronary syndrome; diabetes mellitus and ketoacidosis, anemia and thyroid gland disease)												
4. Teaching methods	Lectures: 10 hours Practical work based on problem based learning (PBL): 10 hours												
5. Method of knowledge assessment and examination	<p>Continuous assessment of the knowledge and skills (Midterm examination) will be carried out trough Partial exam and Practical exam.</p> <p>Examination:</p> <ul style="list-style-type: none">-practical work colloquium (4 parts/modules)-written test for modules 1, 2, 3 and 4. contains multiple choice questions (MCQ). <p>Practical examination</p> <p>Practical work will be evaluated for modules 1-4 using 4 Checking lists (Colloquia). Each checking list contains 9 MCQs (15 points); the minimum level required to pass each colloquium is 5 correctly solved MCQs (8.3 points).</p> <p>Partial (Theoretical) examinations</p> <p>Knowledge will be evaluated using MCQ test containing 20 questions (40 points); the minimum level required to pass is 11 correctly solved MCQs (22 points).</p> <p>Student is not obliged to take regular exam if minimum points are attained during midterm exams for both practical and theoretical parts.</p> <p>Total score attained during midterm examination.</p> <table><tr><td></td><td>min</td><td>max</td></tr><tr><td>Practical exam</td><td>33</td><td>60</td></tr><tr><td>Partial exam</td><td>22</td><td>40</td></tr><tr><td>Total</td><td>55</td><td>100</td></tr></table> <p>Regular examination term (Final exam)</p> <p>Student is obliged to take regular exam if minimum points are not attained during midterm exams for both practical and theoretical parts of the course. Regular exam should be taken also if a student is not satisfied with the grade received on the midterm examination. Practical work will be taken before theoretical examination as obligatory condition for theoretical examination.</p> <p>Student will take colloquium that failed (1-4) during midterm examination (for those who failed all 4 colloquia, integral test will be assigned). The integral test contains 36 MCQs and the minimum level required to pass is 20 correctly solved questions.</p>		min	max	Practical exam	33	60	Partial exam	22	40	Total	55	100
	min	max											
Practical exam	33	60											
Partial exam	22	40											
Total	55	100											

	<p>Theoretical examination will be provided with 20 MCQs test.</p> <p>Re-sit examination term /September examination term Previously defined criteria will be applied also in Re-sit and September examination terms.</p> <p>Grading system and grading points Final grade is reported according to points attained during both forms of the knowledge assessment (practical and theoretical exams).</p> <table><tr><th><i>Grade</i></th><th><i>Total score (points)</i></th><th><i>Grade description</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>Outstanding results without errors or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good, but with significant mistakes</td></tr><tr><td>6 (E)</td><td>55-64</td><td>Meets the minimum criteria</td></tr><tr><td>5 (F, FX)</td><td><55</td><td>Does not meet the minimum criteria</td></tr></table>	<i>Grade</i>	<i>Total score (points)</i>	<i>Grade description</i>	10 (A)	95-100	Outstanding results without errors or with minor errors	9 (B)	85-94	Above average, with some mistakes	8 (C)	75-84	Average, with noticeable mistakes	7 (D)	65-74	Generally good, but with significant mistakes	6 (E)	55-64	Meets the minimum criteria	5 (F, FX)	<55	Does not meet the minimum criteria
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6 (E)	55-64	Meets the minimum criteria																				
5 (F, FX)	<55	Does not meet the minimum criteria																				
6. Literature	<p>Required:</p> <p>1. Teaching materials written by Medical Biochemistry personnel.</p> <p>Recommended:</p> <p>2. Gaw A, Cowan RA, Murphy MJ, O'Reilly DSJ, Srivastava R. Clinical Biochemistry. Churchill Livingstone; 2013.</p>																					
7. Remarks	<p>Student office hours are published in a separate schedule which can be found on the Department's notice-board and on faculty website. Pre-agreed consultations are obligatory, and can be scheduled with the Department's secretary or via e-mail:</p> <p>biohemija@mf.unsa.ba; sabaheta.hasic@mf.unsa.ba</p>																					

**COURSE PLAN: RATIONAL LABORATORY DIAGNOSTICS IN CLINICAL
BIOCHEMISTRY**

Week 15	Form of Instructions and materials	Number of classes
Monday	<p>Lecture: Strategy to promote the rational use of laboratory testing. Laboratory tests: which, why and what do the results mean? Interpretation of laboratory test results-reliability of laboratory tests.</p> <p>Practical: The rational use of laboratory tests in the diagnosis and management of biliary tract diseases: differentiation of hepatitis types, approach to a patient with elevated serum alkaline phosphatase (AP) in differential diagnosis of liver disease, cholestatic and hepatocellular liver disease differentiation, laboratory diagnosis of viral hepatitis. A case report: obstructive jaundice, liver cirrhosis. Guidelines and recommendations for laboratory analysis in the diagnostics of pancreas disease, approach to a patient with elevated serum amylase and lipase. Case report: acute pancreatitis.</p>	3 3
Tuesday	<p>Lecture: Reducing unnecessary laboratory testing using diagnostic algorithms. Algorithm-based decision rules to reduce safely laboratory testing. Classification of the emergency laboratory tests. Organ disease laboratory panel.</p> <p>Practical: The rational use of laboratory tests in the diagnosis and management of acute coronary syndrome. A case report: acute myocardial infarction. Guidelines and recommendations for laboratory analysis and classification of acid-base disorders. The rational use of laboratory tests in the diagnosis and monitoring of diabetes mellitus. Case report: diabetic ketoacidosis.</p>	3 3
Wednesday	<p>Lecture: Patients preparation for medical laboratory tests. Laboratory test ordering-parallel and series multiparameter testing, single parameter testing. Laboratory testing in primary and secondary care - laboratory testing assessment in health and disease. The rational use of laboratory testing in primary care.</p> <p>Practical: The rational use of laboratory tests in the diagnosis and management of kidney disease. Guidelines and recommendations for laboratory analysis in ruling out and differentiation of kidney disease. Case report: Nephrotic syndrome. Guidelines and recommendations for rational use of laboratory tests in acute abdominal pain. Case report: acute cholecystitis, renal colic. The rational use of laboratory tests in thyroid gland disease. Case report: Hashimoto's Thyroiditis, Graves disease. Guidelines and recommendations for laboratory analysis of anemias. Case report: iron deficiency and megaloblastic anemias.</p>	3 3
Thursday	<p>Midterm examination term</p> <ul style="list-style-type: none"> • Practical examination • Partial (Theoretical) examination 	1 1
Weeks. 17/18	Final exam (regular term)	
Weeks 19/20	Final exam (make-up examination term)	
September	Final exam (September examination exam)	

Code: MFSE 1009	Course title: REHABILITATION OF PATIENTS WITH OSTEOPOROSIS		
Level: clinical	Study year: VI	Semester: XI	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate professor Ksenija Miladinović, MD PhD; Professor Narcisa Vavra-Hadžiahmetović, MD PhD; Associate Professor Edina Tanović, MD PhD; Assistant Damir Čelik, MD MSc.			
1. Overall aim	<p>The goal of course is to introduce student to the theory and practice principles of modern rehabilitation of patients with osteoporosis.</p> <p>After successful completion of this course teaching student will adopt procedures in the field of rehabilitation in order to treat disease and prevent complications and disability in patients with osteoporosis.</p>		
2. Course contents	<p>Through teaching the course Rehabilitation of Patients with Osteoporosis student will acquire the following knowledge:</p> <p>Module 1. Primary and secondary osteoporosis from the point of rehabilitation The aim of the module is to introduce students to the basic characteristics of primary and secondary osteoporosis, the possibilities of rehabilitation, treatment and prevention of complications and disability.</p> <p>Module 2. Rehabilitation programs which are applied in patients with primary and secondary osteoporosis The aim of the module is to introduce students to the importance of adequate and continuous program of rehabilitation and treatment of osteoporosis in patients with primary and secondary osteoporosis.</p> <p>Module 3. Kinesitherapy in patients with primary and secondary osteoporosis The aim of the module is to introduce students to the forms and effects of kinesitherapeutic procedures, which are applied in the treatment and prevention of complications and disability in patients with primary and secondary osteoporosis.</p> <p>Module 4. Education of patients about importance of rehabilitation, treatment and prevention of complications and disability in osteoporosis The aim of the module is to introduce students to the methods and programs of education of patients about the importance of rehabilitation, treatment and prevention of complications and disability in osteoporosis.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>The skills that a student needs to know to perform effectively (<i>knows how and makes</i>):</p> <ol style="list-style-type: none">1. Taking history in patients with osteoporosis2. Diagnostic: laboratory findings, DEXA densitometry, X-ray, biomarkers of bone metabolism		

	<p>3. Setting the working diagnosis and assessment of the probability for bone fractures, FRAX index</p> <p>4. Functional assessment - functional tests, motor tests, coordination tests, test walk, social tests</p> <p>5. Development of rehabilitation plan for patients with osteoporosis</p> <p>6. Assessing the results of medical rehabilitation in patients with osteoporosis</p> <p>7. Education of patients regarding the issues brought by osteoporosis</p> <p>The skills that the student <i>needs to know (know how)</i>:</p> <p>1. Practical application of methods of physical therapy and rehabilitation in patients with osteoporosis</p> <p>After completed teaching, the student should adopt the following attitudes:</p> <p>1. In patients with osteoporosis, it is necessary to respect the principle of rational approach to physical therapy and rehabilitation.</p> <p>2. Optimal choice of physical therapy and rehabilitation methods in patients with osteoporosis is a prerequisite for successful treatment.</p> <p>3. Patients with osteoporosis should be provided the best available treatment.</p> <p>4. Necessity for continuous improvement of knowledge and the quality of work.</p>
4. Teaching methods	<p>The course is organized in the form of lectures and exercises.</p> <p>- Lectures: 10 hours</p> <p>- Exercises: 10 hours</p> <p>During the exercise will be used different methods: small-group work, discussion, case studies, project assignment, student presentations.</p> <p>As part of the scheduled number of hours, there will be continuous assessment forms.</p>
5. Method of knowledge assessment and examination	<p>Student assessment will be carried out continuously during the semester (Partial exam and Practical exam) and in the form of Final exam.</p> <p>Partial exam</p> <p>Written test is a test with 30 MCQ questions, which will examine knowledge adopted through all modules. Each correct answer carries 2 points, a total of 60 points. To be considered passed the exam, student should win at least 33 points. Number of points are added to other points and concludes the final score.</p> <p>Practical exam</p> <p>Practical examination includes assessment of skills acquired through all the modules. Evaluation of acquired skills is done through the fulfillment of the tasks previously defined in the checklist (check list). Each task carries a certain number of points. The maximum number of points that a student can win is 40. For practical exam to be considered passed, student must gain at least 22 points. Number of points will be added to other points in the formation of the final mark.</p> <p>Final exam</p> <p>If student failed to pass Partial exam, the examinations material is deposited on the Final exam, which contains a total of 30 MCQ questions, each correct</p>

	<p>answer brings 2 points. The minimum number of points to pass the exam is 33 points, a maximum 60 points.</p> <p>The condition for passing the written part of the Final examination is previously passed the Practical exam.</p> <p>Achieved points are added to other points and together form the final score.</p> <p>Repeated and Remedial exam</p> <p>Repeated and Remedial exam take place according to previously defined criteria of the Final exam.</p> <p>The total number of points obtained through all forms of assessment, is converted to the final mark as follows:</p> <table><tr><th>Grade</th><th>Points</th><th>Grade description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success with minor errors</td></tr><tr><td>9(B)</td><td>85-94</td><td>above average, with some mistake</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good, but with significant shortcomings</td></tr><tr><td>6 (E)</td><td>55-64</td><td>meets the minimum criteria</td></tr><tr><td>5(F, FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	Grade	Points	Grade description	10 (A)	95-100	exceptional success with minor errors	9(B)	85-94	above average, with some mistake	8 (C)	75-84	average, with noticeable errors	7 (D)	65-74	generally good, but with significant shortcomings	6 (E)	55-64	meets the minimum criteria	5(F, FX)	< 55	does not meet the minimum criteria
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6 (E)	55-64	meets the minimum criteria																				
5(F, FX)	< 55	does not meet the minimum criteria																				
6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">Robert Marcus, David Feldman, David W. Dempster, Marjorie Lucky, Jane A. Cauley. Osteoporosis/Fourth Edition. Elsevier Inc; 2013. <p>Extended:</p> <ul style="list-style-type: none">Mehrsheed Sinaki, Michael Pfeifer. Non-Pharmacological Management of Osteoporosis. Springer; 2017.Walter Frontera, Joel DeLisa, Bruce Gans, Nicolas Walsh, Lawrence Robinson. De Lisa's Physical Medicine and Rehabilitation. Principles and Practice . Fifth Edition. Lippincott Williams & Wilkins; 2013.																					
7. Remark	<p>All forms of teaching are mandatory.</p> <p>Exercises at the Clinic for Physiatry and Rehabilitation CCU Sarajevo can be attended by students with a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations for students will be held from 13 to 14 hours each day, with a prior announcement to the teaching professor by e-mail: ksenija.miladinovic@mf.unsa.ba</p>																					

COURSE PLAN: REHABILITATION OF PATIENTS WITH OSTEOPOROSIS

Week 15.	Teaching form	Hours
Tuesday	Lecture: Osteoporosis-definition, etiology, types of osteoporosis, Primary and secondary osteoporosis, diagnostic procedures, clinical signs and symptoms, secondary complications, rehabilitation program – specific approach. Physical modalities with osteogenic effects. Pulsed magnetic field, low intensity pulsed ultrasound, vibrational therapy.	3
	Practical work: Taking a medical history – specific approach, tests and scales in patients with osteoporosis. Practical application of prevention methods for complications in patients with osteoporosis, primarily fractures and falls; FRAX index. Practical application and dosage of specific physical modalities in patients with osteoporosis.	3
Wednesday	Lecture: Kinesitherapy as main non-pharmacological treatment of osteoporosis. Types and osteogenic effects of specific kinesitherapeutic procedures, which are applied in the treatment and prevention of complications and disability in patients with primary and secondary osteoporosis.	3
	Practical work: Presentation of specific kinesytherapeutic procedures for patients with different stages of osteoporosis.	3
Thursday	Lecture: Importance of patient's education about developing adherence to continuous and regular treatment, pharmacological and non-pharmacological, especially kinesitherapy, in order to prevent complications and disability in osteoporosis.	2
	Practical work: Presentation of specific kinesytherapeutic procedures and their dosage (intensity, repetition, frequency) for patients with different stages of osteoporosis.	2
Friday	Lecture: Partial exam	2
	Practical: Practical exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 1010	Course title: PEDIATRIC OPHTHALMOLOGY		
Level: clinical	Study year: V	Semester: X	ECTS: 1
Status: elective			Total hours: 20
Prerequisites :	According to the Study Regulation		
Lecturers: Professor Emina Alimanović Halilović, MD PhD; Assistant Professor Raif Serdarević, MD PhD; Assistant Edita Dervišević, MD PhD.			
1. Overall aim	Introduce the student to: - principles of pediatric ophthalmology - the most common pediatric eye problems, their pathogenesis, clinical picture, diagnosis and contemporary therapy.		
2. Course contents	<p>During the course the student will acquire the following knowledge:</p> <p>Module 1. Low vision, strabismus and nystagmus The aim of the Module is to introduce students to etiology, clinical presentation, diagnosis and treatment methods for low vision, strabismus and nystagmus.</p> <p>Module 2. Red eyes in children and stenosis of the tear duct The aim of the Module is to introduce students to causes of red eyes in children, the most common inflammatory conditions of anterior eye segments and congenital blockage of tear duct, its etiology, clinical presentation and treatment in children.</p> <p>Module 3. Pediatric cataract and glaucoma The aim of the Module is to introduce the student to etiology, clinical presentation and treatment methods in pediatric cataracts and glaucoma.</p> <p>Module 4. Retinopathy of prematurity - ROP The aim of the Module is to introduce students to etiopathogenesis, clinical presentation, diagnosis, ROP treatment methods, and to emphasize importance of screening for early retinopathy.</p> <p>Module 5. Tumors and ocular trauma in children The aim of the Module is to introduce students to etiology, clinical presentation, methods of treating eye traumas and tumors in children.</p> <p>During the course study students will master the following skills:</p> <p><i>Skills the student should know to perform in practice (knows how to do):</i></p> <ul style="list-style-type: none">- take proper anamnesis and heteroanamnesis- recognize basic symptoms of certain listed conditions- do a proper examination on a biomicroscope- perform a test of Carver- examine ocular motility <p><i>Skills the student needs to know (knows how and when):</i></p> <ul style="list-style-type: none">- perform Hirschberg test correctly- knowledge of specific diagnostic procedures- knowledge to analyze orthoptic findings in patients- knowledge in setting indications for additional examinations and		

	<p>diagnostic procedures</p> <p>Following the completed course the student should adopt the following attitudes: Proper triage and referral to ophthalmology services can to a large extent contribute to identification of congenital ophthalmologic diseases, their treatment and prevention of low vision and blindness in children.</p>
4. Learning methodology	<p>The Course will comprise:</p> <ul style="list-style-type: none"> - Lecture:10 hours - Practical classes:10 hours
5. Knowledge assessment methodology	<p>Knowledge assessment will be continuously tested during the study course.</p> <p>Continuous knowledge testing Continuous knowledge assessment comprises Practical and Partial exam.</p> <p>Practical exam Practical exam involves assessment of skills adopted through all Modules, at the end of the course. Evaluation of adopted skill will be performed based on tasks fulfilled in previously defined check lists. Each task carries specific number of points. Maximal number of points which the student can score is 40. For the practical exam to be considered successfully passed the student must score a minimum of 22 points. The total score is added to other scores in determining final grade.</p> <p>Partial exam Partial exam is in the form of MCQ test comprising 30 questions which will test knowledge adopted through all modules. Each correct answer carries 2 points and there is a total of 60 points. In order to considered it successfully passed the student must earn a minimum of 33 points. The total score is added to other scores in determining final grade.</p> <p>Final exam At Final exam the student will take up parts of the course material which he/she failed to pass during the course. The precondition for taking written part of the Final exam is successfully passed Practical exam. Final exam is conducted and graded based on previously defined knowledge assessment methodology. The total score is added to other scores in determining final grade.</p> <p>Repeated exam and Remedial exam If during the semester and at Final exam the student fails to pass Practical and Partial exam, he/she will retake unsuccessfully passed parts of the course at Repeated exam and Remedial exam. The precondition for taking Final exam is previously successfully passed Practical exam.</p> <p>Determining final grade The total number of points scored in all forms of knowledge testing is translated into final grade as follows:</p>

	<i>Grade</i>	<i>Number of points</i>	<i>Grade description</i>
	10 (A)	95-100	Remarkable success without mistakes or with minor errors
	9 (B)	85-94	Above average, with some mistakes
	8 (C)	75 -84	Average, with subtle errors
	7 (D)	65-74	Generally good, but with significant shortcomings
	6 (E)	55-64	Meets the minimum criteria
	5 (F, FX)	< 54	Does not meet the minimum criteria
6. Literature	Mandatory: <ul style="list-style-type: none"> – Gerstenblith AT, Rabinowitz MP. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Diseases. 16th edition, Wolters Kluwer, Lippincott Williams & Wilkins, Philadelphia; 2012. – The Eye MD Association. Fundamentals and Principles of Ophthalmology. American Academy of Ophthalmology, 2013. – Kanski JJ, Bowling B. Clinical Ophthalmology: A Systematic Approach: Online and Print, 7th edition, Elsevier- Saunders, 2011. – Justis P, Ehlers and Chrag P. Shah. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Disease. 15th edition, Wolters Kluwer, Lippincott Williams & Wilkins, Philadelphia, 2008. 		
7. Note	Maximum number of students attending the study course is 30. Lectures and practical classes are carried out in accordance with the course implementing plan at appropriate teaching locations of the Ophthalmology Department. All types of the course are mandatory. Practical classes will be attended by student having valid sanitary identity card and formal uniform. Fixing absences from classes is in accordance with applicable legal regulations. Consultations will be provided at the Department of Ophthalmology each working day from 12.30 am to 1.15 pm with advance notice via Department of Ophthalmology e-mail: oftalmologija@mf.unsa.ba		

COURSE PLAN: PEDIATRIC OPHTHALMOLOGY

Week 15.	Form of teaching	Number of hours
Tuesday	<p>Lecture: Causes and pathogenesis of low visibility, types and clinical picture of strabismus and nystagmus, diagnosis and possibilities of conservative and surgical treatment. Etiology, clinical picture, diagnosing and treatment of the most common conditions in pediatric ophthalmology, causing read eye (allergic and inflammatory keratoconjunctivitis, keratitis, uveitis, stenosis canalis nasolacimalis, dacryocystitis, dacrioadenitis....).</p> <p>Practical classes: Overview of tests for the assessment of low vision stages, cover-uncover test, fusion testing, simultaneous perception test, and tests for binocular vision. Displaying characteristic cases on footage and in practice. Displaying characteristic cases on models, footage and in practice. Demonstrating the application of adequate therapy.</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: Etiology, diagnosis, clinical presentation and surgical treatment of pediatric cataracts and pediatric glaucoma. Review of a specific nature of operative treatment of pediatric cataracts and necessity of early surgical treatment of congenital glaucoma.</p> <p>Practical classes: Overview of characteristic cases via video link directly from operating theater or video clips from the internet.</p>	<p>3</p> <p>2</p>
Thursday	<p>Lecture: Etiology, pathogenesis, clinical presentation, diagnosis and possible treatment of retinopathy of prematurity and retinoblastoma, as the most common eye malignancies of childhood. The most common open and closed globe eye injuries and trauma of adnexa in children with or without foreign body, with or without internal eye structures prolapse: etiology, clinical presentation, diagnosis and treatment.</p> <p>Practical classes: Overview of characteristic cases through presentations, footages, video clips and patients.</p>	<p>2</p> <p>3</p>
Friday	<p>Practical exam</p> <p>Partial exam</p>	<p>2</p> <p>2</p>
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	

September	Final exam (Septembar examination term)	
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Code: MFSE 1011	Course title: PATHOLOGY IN PREGNANCY AND FETAL PATHOLOGY		
Level: clinical	Year: V	Semester: X	ECTS credits: 1
Status: elective	Total contact hours: 20		
Prerequisites :	According to the Study Regulation		
Lecturers and associates: Professor Sebiša Izetbegović, MD PhD; Assistant Professor Fatima Gavrankapetanović-Smailbegović, MD PhD; Assistant Anela Softić-Kasumović, MD			
1. Overall aim	The aim of the course in Pathology in Pregnancy and Fetal Pathology is to enable the student to recognize physiological and pathological pregnancy based on provided prenatal and postpartum care, and to solve problems related to human reproduction.		
2. Course contents	<p>Through the course in Pathology in Pregnancy and Fetal Pathology the student will acquire the following knowledge:</p> <p>Module 1. Cardiovascular disease (CVD) in pregnancy The aim of the Module is to introduce the student to the influence of CVD on the course and outcome of pregnancy, consequent need to monitor the pregnant woman and fetus, types of childbirth, postpartum care and possible complications of the pregnant woman with CVD.</p> <p>Module 2. Asthma in pregnancy The aim of the Module is to introduce the student to the influence of pregnancy on clinical picture of asthma and the influence of asthma on the course of pregnancy, monitoring of such pregnant women and fetus, delivery methods and medicamentous therapy.</p> <p>Module 3. Endocrine diseases in pregnancy The aim of the Module is to introduce the student to the course of pregnancy in patients with hyperthyroidism, hypothyroidism, Addison's disease.</p> <p>Module 4. Surgical diseases in pregnancy The aim of the Module is to introduce the student to surgical disease in pregnancy (appendicitis, cholecystitis, echinococcosis of the liver and lung, ileus, peritonitis).</p> <p>Module 5. Fetal pathology The aim of the Module is to introduce the student to fetal pathology such as: polyhydramnios, oligohydramnios, fetal malformations with small and large fetal anomalies, ethical attitude, medical in utero and postnatal repair.</p> <p><i>Skills that the students must use in practice (knows and is able to do) are as follows:</i></p> <ul style="list-style-type: none">- take anamnesis of the pregnant woman with risk pregnancy- apply external examination technique, measurement- internal examination in pregnancy. <p><i>Skills the student needs to adopt (to know when and how):</i></p> <ul style="list-style-type: none">- determine the gestational age and calculate due date respectively, and interpret CTG findings- Amnioscopy- Ph-meter		

	<ul style="list-style-type: none"> - Ultrasound examination - Color Doppler ultrasound - 4D ultrasound examination <p>Through the course in Pathology in Pregnancy and Fetal Pathology the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - Assessment of normal or pathological pregnancy can be determined based on physical examination of a pregnant woman and auscultation of the heart in infant. - Sick pregnant woman and puerpera with pathological pregnancy should be properly provided for transportation to hospital.
4. Learning methodology	<p>Teaching will include:</p> <ul style="list-style-type: none"> - Lectures: 10 hours - Practical classes: 10 hours
5. Knowledge assessment methods	<p>Continues knowledge testing will be performed within the scheduled number of hours. Practical testing will be partially performed on phantoms at GAK premises and partially at GAK Department of Pathology in Pregnancy. Continuous knowledge assessment involves Practical exam and Partial exam.</p> <p>Practical exam</p> <p>Practical exam comprises assessment of the acquired skills through Modules 1-5. Evaluation of the acquired skills will be performed based on previously completed tasks defined in the check list. Each task bears a certain number of credits. The overall number of credits which the student may score within this part of continuous knowledge testing is 20. The student must score at least 11 credits for the practical exam to be considered successfully passed. The final score will be added to other scores in determining the final grade.</p> <p>Partial exam</p> <p>Partial exam will include assessment of knowledge acquired through Modules 1-5. Partial exam is a written test comprising 40 multiple choice questions (MCQ). Each correct answer to the MCQ carries two points. Maximum number of points which the student may score in this part of the exam is 80. The exam will be considered successfully passed if the student scores a minimal of 44 points. The final score will be added to other scores in determining the final grade.</p> <p>Final exam</p> <p>If the student fails to pass Practical exam and Partial exam during the semester he/she will take Final exam. The condition for taking written part of the Final exam is previously successfully passed practical part of the exam.</p> <p>The Final exam will involve testing knowledge acquired through Modules 1-5. Final exam is a written test comprising 40 multiple choice questions (MCQ). Each correct answer to the MCQ carries two points. Maximum number of points which the student may score in this part of the exam is 80. The exam will be considered successfully passed if the student scores a minimal of 44 points. The final score will be added to other scores in determining the final grade.</p>

	<p>Repeated and Remedial exam Repeated exam and Remedial exam is performed in accordance with previously defined Final exam criteria.</p> <p>Final grade Grade is defined by summing up all points earned for each type of knowledge testing.</p> <table><tr><th>Grade</th><th>Points</th><th>Grade description</th></tr><tr><td>10 (A)</td><td>95 -100</td><td>Extraordinary achievement without or with minimum mistakes</td></tr><tr><td>9(B)</td><td>85-94</td><td>Above average, with some mistakes</td></tr><tr><td>8(C)</td><td>75-84</td><td>Average, with noticeable mistakes</td></tr><tr><td>7(D)</td><td>65-74</td><td>Good in general, but with significant flaws</td></tr><tr><td>6(E)</td><td>55 -64</td><td>Meet the minimum requirements</td></tr><tr><td>5(F, FX)</td><td>< 55</td><td>Does not meet the minimum requirements</td></tr></table>	Grade	Points	Grade description	10 (A)	95 -100	Extraordinary achievement without or with minimum mistakes	9(B)	85-94	Above average, with some mistakes	8(C)	75-84	Average, with noticeable mistakes	7(D)	65-74	Good in general, but with significant flaws	6(E)	55 -64	Meet the minimum requirements	5(F, FX)	< 55	Does not meet the minimum requirements
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5(F, FX)	< 55	Does not meet the minimum requirements																				
6. Literature	<p>Obligatory:</p> <p>- Konishi I, Katabuchi H. (eds). Comprehensive Gynecology and Obstetrics. Springer Nature Switzerland AG; 2018.</p> <p>Additional:</p> <ul style="list-style-type: none">- Lobo RA, Gershenson DM, Lentz GM. Comprehensive Gynecology, 7th Edition. Elsevier, Inc; 2017.- Kuvačić I, Kurjak A, Đelmiš J. i suradnici. Porodništvo. Zagreb: Biblioteka Sveučilišni udžbenici / Medicinska naklada; 2009.- Balić A. i sar. Perinatologija. Tuzla; Univerzitet u Tuzli; 2007.- Kurjak A. i saradnici. Ginekologija i perinatologija. Zagreb; Tonimir; 2003.- Šimić S. i sar. Ginekologija i opstetricija: akutna i urgentna stanja. Sarajevo: Muller; 2003.																					
7. Note	<p>All forms of teaching are mandatory.</p> <p>Leactures and practical classes are performed according to the established curriculums at appropriate teaching locations of the Department for Gynecology and Obstetrics. Maximum number of students attending the course is 40.</p> <p>The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform. The number of students per assistant is between 4 and 5 (ideally 4), and number of patients per student is 5.</p> <p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is each working day pre-reserved with the teaching staff.</p>																					

COURSE PLAN: PATHOLOGY IN PREGNANCY AND FETAL PATHOLOGY

Week 15.	Form of teaching	Hours
Tuesday	Lecture: Cardiovascular diseases in pregnancy, asthma and pregnancy. Influence of pregnancy on the course of disease, influence of the disease on the course and outcome of pregnancy, monitoring of the pregnant woman and fetus, types of childbirth, medicamentous therapy, postpartum care and possible complications. Endocrine diseases in pregnancy: hyperthyroidism, hypothyroidism, Addison's disease. Influence of the disease on the course of pregnancy, influence of the disease on the course and outcome of pregnancy, monitoring of the pregnant woman and fetal monitoring, types of childbirth, medicamentous therapy.	3
	Practical classes: Taking anamnesis at Department of Pathology in Pregnancy, examination in pregnancy, obstetric ultrasound, obstetric monitoring, analysis of biochemical parameters in pregnancy.	2
Wednesday	Lecture: Surgical diseases in pregnancy. The student is introduced to surgical diseases in pregnancy such as: appendicitis, cholecystitis, echinococcosis of the liver and lung, ileus, peritonitis. Influence of the disease on the course of pregnancy, influence of the disease on the course and outcome of pregnancy, monitoring of the pregnant woman and fetal monitoring, types of childbirth, medicamentous therapy.	3
	Practical classes: Taking anamnesis at Department of Pathology in Pregnancy, examination in pregnancy, obstetric ultrasound, obstetric monitoring, analysis of biochemical parameters, therapy.	3
Thursday	Lecture: Fetal pathology. Polyhydramnios, oligohydramnios, fetal malformations with small and large fetal anomalies, ethical attitude, medical in utero and postnatal repair. Influence of the disease on the course of pregnancy, influence of the disease on the course and outcome of pregnancy, monitoring of the pregnant woman and fetal monitoring, types of childbirth, medicamentous therapy.	3
	Practical classes: Taking anamnesis and physical examination, analysis of the requested laboratory findings. Diagnostic values of 2D, 3D and 4D ultrasound, Color Doppler. Diagnostic value of fetal MRI, biochemical markers in fetal pathology.	3
Friday	Partial exam	1
	Practical exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 1012		Course Title: PRENATAL DIAGNOSTIC	
Study Level: clinical	Year: V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Assistant Professor Fatima Gavrankapetanović-Smailbegović, MD PhD; Sanjin Deković, MD MSc			
1. Overall aim	The aim of the course is to teach the student to recognize the preexisting illness of the pregnant patient, pregnancy-related health disorders, as well as to recognize and manage fetal complications.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. Initial screening and testing The purpose of the Module is to acquaint a student with prenatal diagnostic tests, their significance for the further process and outcome of the pregnancy, as well as the significance of the prenatal information before or during the 36th week of pregnancy.</p> <p>Module 2. Frequency and schedule of the examinations The aim of the Module is to acquaint a student with the importance of a regular/correct schedule of examinations, whose frequency should be determined according to their functionality; for the first-time pregnancies with an uncomplicated pregnancy course - the number of examinations is about 10, and for the women who are multiparous, about 7 examinations.</p> <p>Module 3. Immunization and counseling about the usual symptoms of pregnancy The goal of the Module is to introduce a student with the importance of the "Hepatitis B" vaccination, the optimum selection of the candidates for HBV immunization, as well as familiarity with vaccines which are contraindicated during pregnancy.</p> <p>Module 4. Clinical examination of pregnant women The goal of the Module is to introduce a student to the clinical examination of the pregnant woman, its content and the importance of the screening in clinical conditions.</p> <p>Module 5. Ultrasound diagnostics and screening methods for chromosomal aberrations The goal of the Module is to introduce a student to a recommended number of ultrasound examinations, additional ultrasound markers for chromosomal aberrations / pathologies, and to introduce a student with a study of fetus morphology and fetal organ examination. Furthermore, to introduce a student to an invasive and non-invasive methods for the detection of chromosomal aberrations.</p>		
3. Learning outcomes: knowledge, skill and competences	Through the course of the Prenatal Diagnostics, students will acquire the necessary knowledge about: - the practical examination of the pregnant patient - planning of the available diagnostic methods in establishment of diagnosis		

	<ul style="list-style-type: none"> - recognition of the importance of targeted laboratory examinations - counseling about the importance of the regular monitoring and control of the blood pressure - usage of an adequate therapy in terms of folic acid, vitamin D - counseling about possible teratogenic effects of excessive use of vitamin A - counseling about the use of iron preparations if the Hb values are lower than the reference values. <p><i>Throughout the course, the student will adopt the following skills:</i></p> <ul style="list-style-type: none"> - Acquiring of communication skills with a pregnant patient - Clinical examination techniques - Techniques and strategies of ultrasound examination of the pregnant woman - Knowing the schedule and the timing of tests during a pregnancy.
3. Teaching methods	<p>The teaching will be performed through:</p> <ul style="list-style-type: none"> - Lectures: 10 hours - Practical classes: 10 hours <p>The teaching methods are:</p> <ul style="list-style-type: none"> - Interactive theoretical and practical teaching, work in small groups - The "4 Steps per Peyton" method will be used, and "problem based learning".
5. Knowledge Assessment Methods	<p>Student knowledge testing will be continuously performed during the term and in the Final exam.</p> <p>Continuous knowledge testing Continuous knowledge testing involves: Practical exam and Partial exam.</p> <p>Practical exam Practical exam implies assessment of adopted skills through the modules from 1-5. Evaluation of the adopted skills will be carried out by fulfilling the tasks previously defined in the examination list (check list). Each task carries a certain number of points. The total number of points that a student can acquire within this part of the continuous knowledge assessment is 20. A student must score at least 11 points for the practical exam to be considered as passed. The acquired number of points is added to the other points in the formation of the final grade.</p> <p>Partial exam At Partial exam, the knowledge acquired through Modules 1-5 will be tested. The exam is designed in the form of an oral examination of the knowledge, where the student answers the questions printed on the so-called test card which they draw randomly from a group of offered test cards. On each test card, there are eight (8) questions to which every candidate needs to give a satisfactory answer. Each question carries 10 points. It is necessary to score at least 44 points to pass the exam. The maximum number of points is 80. The acquired number of points is added to the remainder of the points.</p> <p>Final exam</p>

	<p>If during the term the student fails to pass practical and partial parts of the exam, he/she will take up the failed parts at the Final exam, Final exam will be conducted per the previously defined criteria of the Partial exam. The condition for enrolling the Final exam is previously passed practical part of the exam.</p> <p>Repeated and Remedial exam</p> <p>If the student had not passed the Final exam or is dissatisfied with the grade obtained during the Final exam, they will take the Repeated or Remedial exam, which will be identical to the Final exam.</p> <p>The final grade is composed by summing up all the points won from each form of knowledge testing.</p> <table><tr><th>Grade</th><th>Number of points</th><th>Grade Description</th></tr><tr><td>10(A)</td><td>95-100</td><td>Exceptional success without errors, or with minor errors</td></tr><tr><td>9(B)</td><td>85-94</td><td>Above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with noticeable errors</td></tr><tr><td>7(D)</td><td>65-74</td><td>Generally good, but with significant deficiencies</td></tr><tr><td>6(E)</td><td>55-64</td><td>Fulfills minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>Does not fulfill minimum criteria</td></tr></table>	Grade	Number of points	Grade Description	10(A)	95-100	Exceptional success without errors, or with minor errors	9(B)	85-94	Above average, with some mistakes	8 (C)	75-84	Average, with noticeable errors	7(D)	65-74	Generally good, but with significant deficiencies	6(E)	55-64	Fulfills minimum criteria	5 (F,FX)	< 55	Does not fulfill minimum criteria
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6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">- Keeling JW, Yee Khong T. Fetal and Neonatal Pathology, 4th ed. London: Springer Verlag; 2007. <p>Additional:</p> <ul style="list-style-type: none">- Kurjak A. Fetus kao pacijent. Zagreb: Naklada Ljevak; 1991.- Kuvačić I, Kurjak A. i suradnici. Ultrazvuk u ginekologiji i perinatologiji. Zagreb: Medicinska naklada; 2007.- Balić A. i saradnici. Perinatologija, Tuzla: Univerzitet u Tuzli; 2007.																					
7. Notes	<p>All forms of classes/teaching are obligatory. Lectures and practical classes are held per the teaching curriculum in the appropriate teaching bases of the Gynecology and Obstetrics Department. The minimum number of students for the organization of classes in this course is 5, and the maximum 30. The number of students per assistant is between 4 and 5 (optimal 4), and the number of patients per student is 5. The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is each working day pre-reserved by e-mail of teaching professor: fatima.gavrankapetanovic@mf.unsa.ba</p>																					

COURSES PLAN: PRENATAL DIAGNOSTICS

Week 15.	Form of Teaching	Number of hours
Tuesday	Lecture: Initial screening and testing in prenatal diagnosis, and their importance for the further progress of pregnancy, the importance of prenatal information. Frequency and schedule of examinations, the importance of the correct scheduling of examinations per their functionality (first-time pregnancies, multiparous pregnancies)	4
	Exercise: Taking an anamnesis in an obstetric outpatient clinic, gynecological examination with speculums, taking papa test, colposcopy examination, bacteriological swabs.	2
Wednesday	Lecture: Immunizations and counseling about usual symptoms of pregnancy. Significance of the "Hepatitis B" vaccination, selection of candidates for the vaccination, vaccinations during pregnancy	2
	Exercise: Ultrasound examination in the I trimester of pregnancy, determination of blood group RH factor, and instructions on further schedule of pregnancy examinations. Ultrasound examination in the II trimester, expert ultrasound examination, cervicometrics, OGPT, vaccination during the pregnancy	4
Thursday	Lecture: Clinical examination of a pregnant woman. The student is introduced to a clinical examination of a pregnant woman, its content, and the significance of infectious screenings and screenings during clinical conditions	2
	Exercise: Ultrasound examination in the III trimester, getting acquainted with the markers for chromosomopathies, fetal weight and position, bacteriological swabs, amniocentesis, double / triple test	2
Friday	Lecture: Ultrasound diagnostics and the method of screening of chromosomal aberrations. Recommended number of ultrasound examinations, ultrasound marker for chromosomopathies, examination of morphology. Invasive and non-invasive methods for the detection of chromosomal aberrations.	2
	Exercise: Practical and Partial exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 1013		Course title: PUBLIC HEALTH ASPECT OF THE DISEASES IN CHILDHOOD	
Level: clinical	Year: V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Sniježana Hasanbegović, MD PhD; Professor Edo Hasanbegović, MD PhD; Associate Professor Amina Selimović, MD PhD; Assistant Professor Feriha Ćatibušić Hadžagić, MD PhD; Assistant Professor Danka Pokrajac, MD PhD; Assistant Professor Hajrija Maksić, MD PhD; Assistant Sabina Terzić, MD PhD; Assistant Emina Hadžimuratović, MD PhD			
1.Overall aim	The aim of the course Public Health Aspect of the Diseases in Childhood is to put the focus on childhood illnesses that have a high public health significance due to their frequency, influence on mortality rates, or lead to child disabilities.		
3. Course contents	<p>Through the elective course students will adopt the following knowledge:</p> <p>Modul 1. Child mortality rates; causes and trends (perinatal, neonatal, infant, up to 5 years); International Children's Health Organizations The aim of the Module is to understand the need and the way of acting on the individual and general health care plan for the purpose of reducing the mortality rate.</p> <p>Modul 2. Prematurity as a public health problem The goal of the Module is to recognize the public health significance of premature birth, taking into account its frequency, participation in the (neo) natal mortality rates, long term developmental problems, and generating enormous costs in society.</p> <p>Modul 3. Newborns with developmental risk, growth and development disorder The aim of the Module is to introduce risk factors in early-stage of development, which would enable the identification of risky children and the application of early intervention methods.</p> <p>Modul 4. Congenital anomalies, dysmorphic syndromes The aim of the Module is to introduce students with the frequency of major and minor anomalies, their registration and significance, and the impact on the mortality rate and the rate of children with special needs.</p> <p>Modul 5. Disabled child The objective of the Module is to familiarize students with a wide range of disorders covered by this term, with particular reference to cerebral palsy, and a multidisciplinary approach to treatment.</p> <p>Modul 6. Nutrition in childhood The aim of the Module is to familiarize students with the basics of healthy nutrition (in preterm infants, full term newborns to adolescents), emphasizing the benefits of breastfeeding.</p> <p>Modul 7. Nutritional Disorders 1-Deficitary Diseases</p>		

	<p>The aim of the Module is to introduce students with children's nutritional disorders, including malnutrition, anemia, rickets, recurrent infections, due to the involvement of these disorders in the global illness of children.</p> <p>Modul 8. Nutritional Disorders 2 - Obesity and complications in children The aim of the Module is to familiarize students with obesity problems in children, risk for cardiovascular diseases, metabolic syndrome and diabetes in adult age.</p> <p>Modul 9. Immunization of children The aim of the Module is to introduce students with immunization calendars, contraindications and side effects, and recognize the importance of immunization in order to prevent the spread of contagious diseases and the creation of collective immunity.</p> <p>Modul 10. Social pediatrics: The Module's goal is to recognize the impact of the environment on the child, including the positive and negative effects of urbanization.</p>
3. Learning outcomes: knowledge, skill and competences	<p>During the course, the student will master the following skills:</p> <p><i>Skills that a student needs to know:</i></p> <ul style="list-style-type: none"> - the student should develop the ability of global insights into childhood illnesses affecting child mortality or disability with the aim of developing screening methods and preventive pediatrics <p>After attending classes, the student should adopt the following attitudess:</p> <ul style="list-style-type: none"> - Timely prevention of many illnesses in childhood, that are of public health importance is possible. - Action should be individual and global within an integrated and functional health system.
4. Learning methods	<p>Teaching is conducted through:</p> <ul style="list-style-type: none"> - Lectures: 10 hours - Practice: 10 hours
5. Knowledge assessment methods	<p>Students' knowledge checking will be performed on a continuous basis.</p> <p>Continuous assessment of knowledge Continuous assessment of knowledge includes attendance and teaching activity, participation in individual assignments, short seminar work (essay) and Partial exam.</p> <p>Practical exam This subject does not imply a classical practical exam. During continuous monitoring, the student will be awarded for: attendance at 15 points, 15 points of activity during the course, short seminar work (5-6 pages), additional 10 points.</p> <p>Partial exam Partial exam consists of a written part of the exam: an MCQ test and an</p>

	<p>open test. The written part of the final exam is a test with 25 MCQ questions that will examine the knowledge passed through all the modules. Each correct answer is 2 points, 50 points total. Additional 10 points are achieved through open questions in the part of the written exam, a total of 60 points.</p> <p>Final exam If the student fails to pass Practical exam during the semester he/she will take Final exam. It consists of 25 MCQ questions that will examine the knowledge passed through all the modules. Each correct answer is 2 points, 50 points total. Additional 10 points are achieved through open questions in the part of the written exam, a total of 60 points. To qualify for the exam it is necessary to win at least 33 points. The number of points gained by continuous tracking is 15 points, teaching activity 15 points, a short seminar (5-6 pages) of additional 10 points.</p> <p>Repeated and Remedial exam Repeated exam and Remedial exam are conducted according to the previously defined criteria of Final exam.</p> <p>Score is formed by summing all the points earned for each form of knowledge checking.</p> <table><tr><th>Final mark</th><th>Score</th><th>Description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success without mistakes, or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good but with significant disadvantages</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	Final mark	Score	Description	10 (A)	95-100	exceptional success without mistakes, or with minor errors	9 (B)	85-94	above the average, with some mistakes	8 (C)	75-84	average, with noticeable mistakes	7 (D)	65-74	generally good but with significant disadvantages	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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7. Remark	<p>Lectures and exercises are held according to the performance program in the respective teaching bases of the Pediatrics. The maximum number of students in the course is 30. Exercises can be attended only by students who have a valid sanitary booklet and prescribed uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Student consultation period: each working day from 12 am to 2 pm with advance notice to the Pediatrics Chair's secretary or by e-mail: pedijatrija@kcus.ba; snijezana.hasanbegovic@mf.unsa.ba</p>
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COURSE PLAN:PUBLIC HEALTH ASPECT OF THE DISEASES IN CHILDHOOD

Week 15.	Form of teaching	Hours
Tuesday	Lectures: Child mortality rates; causes and trends (perinatal, neonatal, infant, up to 5 years); International Children's Health Organizations. Prematurity as a public health problem. Newborns with developmental risk, Growth and development disorder.	3
	Practice: Mortality rate analysis in developed and underdeveloped countries; Analysis of the causes of death; Mortality rate reduction strategy. Immediate complications of premature birth (Intensive care unit), long-term complications of premature birth.	2
Wednesday	Lectures: Identification of developmental risks; Congenital anomalies, dysmorphic syndromes. Detection of growth and development disorders. A disabled child.	3
	Practice: video presentation of some disorders, with an emphasis on cerebral palsy; multidisciplinary approach to treatment, inclusion. Presentation of congenital anomalies and dysmorphic syndromes.	3
Thursday	Lectures: Breastfeeding. Nutritional disorders 1- Deficitary Diseases. Nutritional disorders 2- Obesity and complications of obesity in children. Immunization of children. Social Pediatrics; Influence of the environment on a child in a broader sense.	3
	Practice: Breastfeeding practice in our country, and the world; Strategy of increasing the rate of breastfeeding. Malnutrition, anemia, rickets, recurrent infections; frequency, causes in underdeveloped countries, prevention.	3
Friday	Practice: Impact of the environment, lifestyle and urbanization on obesity in children Trends of immunization rates in our country and in the world. Attitudes about the need for immunization in relation to the growing trend of non-immunization of children	2
	Practice: Partial exam	1
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September examination term)	

Code: MFSE 1014	Course title: MALIGNANT DISEASES IN CHILDHOOD		
Level: clinical	Year: V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Edo Hasanbegović, MD PhD; Assistant Sabina Terzić, MD PhD; Assistant Emina Hadžimuratović, MD PhD			
1. Overall aim	Aims of the course are: <ul style="list-style-type: none">- to introduce a student with the most common malignancies in children- to introduce a student with epidemiological characteristics of malignant diseases in childhood- to introduce a student with pathogenetic processes that lead to the development of these diseases- to introduce the student with symptoms and clinical signs of the most common malignancies- to introduce a student with basic diagnostic methods- introduce the student with an interpretation of the results of the conducted diagnostic tests that lead to the establishment of an accurate and timely diagnosis- introduce a student with modern principles of prevention and treatment of malignant diseases in children.		
2. Course contents	<p>Throughout the course, the student will adopt the following knowledge:</p> <p>Module 1. Basic characteristics of malignancies in children. Etiopathogenesis, diagnosis and Therapeutic options for treating malignancies of childhood.</p> <p>The aim of the Module is to introduce a student with basic characteristics and differences in child and adult malignancies, with genetic, viral etiology, as well as the influence of environmental factors on the development of malignancies in children, as well as with basic clinical signs and symptoms, and diagnostic procedures for individual malignancies and the modalities of malignant treatment with the application of modern therapeutic protocols and the outcome of treatment for particular diseases.</p> <p>Module 2. Childhood leukemia. Lymphomas of childhood.</p> <p>The goal of the Module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and therapeutic approach in children with leukemia as a most common malignant illness of childhood as well as with clinical picture, diagnosis and therapeutic approach in children with Hodgkin and Non Hodgkin lymphoma.</p> <p>Module 3. Solid tumors</p> <p>The goal of the Module is to introduce a student with etiopathogenesis, clinical picture, diagnostic and therapeutic approaches in the most common solid tumors (Tu Wilms, Neuroblastoma) in children.</p> <p>Module 4. Supportive therapy. Early and late consequences of cytotherapy.</p> <p>The goal of the Module is to introduce a student with modern principles of supportive therapy as one of the main reasons for better survival of children with malignant diseases and also with the consequences of cytotherapy and</p>		

	<p>the possibilities of their prevention.</p> <p>Module 5. Hematopoietic Stem Cell Transplantation</p> <p>The aim of the Module is to introduce a student with the possibility of hematopoietic stem cell (allogeneic and autologous) treatment in oncological and haematological diseases, according to the valid indications of the European Transplantation Association.</p>
3. Learning outcomes	<p>Through the course the student will master the following skills:</p> <p><i>Skills that should be practically performed (knows how to do them):</i></p> <ul style="list-style-type: none"> - recognition of the symptoms and signs of children with malignant diseases - taking a medical history and physical examination of the child - application of diagnostic methods in children with malignancies - interpretation of laboratory findings - interpretation of radiological investigations (X ray, US CT, MRI) - implementation of therapeutic protocols <p><i>Skills that a student needs to know (knows how and when):</i></p> <ul style="list-style-type: none"> - diagnostic approach in malignant pediatric conditions - therapeutic protocols for the treatment of certain malignancies <p>After attending classes, students should adopt the following attitudes:</p> <ul style="list-style-type: none"> - A good practitioner must be familiar with the basic methods of diagnosing the examination and treatment of malignancies of childhood. - Correctly taken anamnesis and the data obtained by examination affect the further diagnostic treatment of patients, whereby doctors' decisions may have an effect on the course and outcome of the disease.
4. Teaching methods	<ul style="list-style-type: none"> - Lectures: 10 hours - Practical work: 10 hours
5. Methods of knowledge assessment and examination	<p>Students' knowledge checking will be performed on a continuous basis. Continuous knowledge and skills assessment will be carried out through Partial exams and Practical exam.</p> <p>Practical Exam</p> <p>Practical Exam entails assessing the skills acquired through all the modules at the end of the course. Evaluation of adopted skills is performed through the fulfillment of the tasks previously defined in the checklist. Each task carries the appropriate number of points. The maximum number of points a student can earn is 40. To pass the practical exam, a student must win at least 22 points. The awarded number of points is added to the other points when forming the final grade.</p> <p>Partial exam</p> <p>Partial exam is a written test with 30 MCQ questions that will examine the knowledge passed through all the modules. Each correct answer wins 2 points, and maximum is 60 points. In order to pass the exam student must earn at least 33 points. The awarded score is added to the other points and concludes the final score.</p>

	<p>Final exam</p> <p>If a student has not passed the Practical and Partial exam during the semester, or is dissatisfied with the grade obtained, she/he is a candidate for the Final exam. The criterion for taking the theoretical part of the exam is previously completed practical part of the exam.</p> <p>Repeated and Remedial exam</p> <p>Repeated and Remedial exam are conducted according to the previously defined criteria of the Final exam.</p> <p>Score is formed by summing all the points earned for each form of knowledge checking.</p> <table><tr><th><i>Mark</i></th><th><i>Points</i></th><th><i>Description of mark</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some mistake</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good but with significant disadvantages</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	<i>Mark</i>	<i>Points</i>	<i>Description of mark</i>	10 (A)	95-100	exceptional success without mistakes or with minor errors	9 (B)	85-94	above the average, with some mistake	8 (C)	75-84	average, with noticeable mistakes	7 (D)	65-74	generally good but with significant disadvantages	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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7. Note	<p>Maximum number of students for this course is 20.</p> <p>The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Student consultation period: every day from 12 am to 2 pm with prior announcement by e-mail: pedijatrija@kcus.ba or edo.hasanbegovic@mf.unsa.ba</p>																					

COURSE PLAN: MALIGNANT DISEASES IN CHILDHOOD

Week 15.	Form of teaching	Hours
Tuesday	Lecture: Epidemiological and clinical characteristics of malignancies of childhood. Incidence and mortality of malignant diseases. Age and gender structure of sick children. Etiology of malignant diseases. Diagnostic-therapeutic protocols for children with malignant diseases. Diagnostic methods in certain malignant diseases. Therapeutic protocols for the treatment of malignancies of childhood.	3
	Practice: Principles of work in the hematooncology department. Anamnesis and physical examination of a patient with malignant disease. Symptoms and signs of a child with malignant disease	2
Wednesday	Lectures: Leukemia and childhood lymphoma. Etiopathogenesis of the disease. Clinical signs and symptoms of the disease. Diagnostic research. Therapeutic approach to childhood leukemia and lymphoma.	3
	Practice: Diagnostic methods in malignant diseases. Interpretation of laboratory and radiological investigations. Therapeutic approaches according to valid treatment protocols.	2
Thursday	Lectures: Solid tumors in children. CNS tumors. Abdominal tumors. Rhabdomyosarcoma. Bone tumors. Histiocytosis. Supportive therapy in the treatment of malignant diseases. Emergency conditions in hematooncology. Tumor lysis syndrome. Treatment of infection. Treatment of pain. Antianemics.	3
	Practice: Anamnesis and physical examination of a patient with leukemia. Diagnostic and therapeutic options for the treatment of leukemia and lymphoma. Bone marrow puncture. Lumbar (diagnostic and therapeutic) puncture.	2
Friday	Practice: Anamnesis and physical examination of a patient with solid tumors. Analysis and interpretation of laboratory findings with a diagnostic and therapeutic plan.	2
	Practical exam	2
	Partial exam	1
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September examination term)	

Code: MFSE 1015	Course title: FLEXIBLE BRONCHOSCOPY IN PEDIATRICS PULMOLOGY		
Level: clinical	Year: V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Amina Selimović, MD PhD; Assistant Sabina Terzić, MD PhD; Assistant Emina Hadžimuratović, MD PhD			
1. Overall aim	The aim of the elective subject "Flexible bronchoscopy in child's pulmology" is to introduce the student with the following: <ul style="list-style-type: none">- A history of flexible bronchoscopy in the world and in B&H- Anatomy of the respiratory tract in bronchoscopy- Equipment needed to perform flexible bronchoscopy in children- Place of performing child's bronchoscopy (operating room, intensive care unit)- Anesthesia and sedation in children's flexible bronchoscopy- Indications and contraindications for childhood flexible bronchoscopy- Procedure for bronchoscopy with bronchoalveolar lavage in childhood- The content of bronchoalveolar lavage and lavage analysis (biological, cytological, pathohistological, biochemical, forceps biopsy)- Complications in children's flexible bronchoscopy (physiological, bacteriological, mechanical)- Modern methods in children's flexible bronchoscopy (autofluorescence bronchoscopy, endobronchial ultrasound bronchoscope, electromagnetic navigational bronchoscopy, transbronchial lung biopsy, transbronchial pulmonary aspiration, methods of interventional bronchoscopy)- The role of children's flexible bronchoscopy in pulmonology- The role of children's flexible bronchoscopy in lung transplantation.		
2. Course contents	Through the teaching of the elective subject "Flexible bronchoscopy in children's pulmology" the student will adopt the following knowledge : Module 1. The history of children's bronchoscopy. Anatomy of the respiratory tract in bronchoscopy. The aim of Module is to introduce student with efficacy of bronchoscopy and with the anatomy of the respiratory tract and exploration of the tracheobronchial tree with a flexible bronchoscope. Module 2. Equipment and facilities for performing children's bronchoscopy. Anesthesia and sedation in children's flexible bronchoscopy. Indications, contraindications and complications in children's flexible bronchoscopy The aim of Module is to introduce student with operating room, the equipment used to perform childhood flexible bronchoscopy, indications and contraindications for performing flexible bronchoscopy in children, as well as familiarizing with complications in flexible bronchoscopy and resolving them.		

	<p>Module 3. Bronchoscopy with bronchoalveolar lavage - procedure and analysis of sputum. The role of children's flexible bronchoscopy in pulmonary disease</p> <p>The aim of Module is introduction to the method of performing childbearing flexible bronchoscopy with bronchoalveolar lavage, and to clarify the significance of the findings of the bronchoalveolar lavage, and in accordance with the findings, explain the introduction of therapy in a child with a lung disease.</p> <p>Module 4. Modern methods in children's flexible bronchoscopy</p> <p>Getting to know new cutting-edge methods that are applied with flexible bronchoscopy.</p> <p>Module 5. The role of children's flexible bronchoscopy in lung transplantation</p> <p>Learning student how flexible bronchoscopy is used in the preoperative preparation of patients with pediatric age for lung transplantation, and explain the role of flexible bronchoscopy after lung transplantation.</p>
3. Learning outcomes (knowledge, skills and competences)	<p><i>The skills that the student should independently know practically perform:</i></p> <ul style="list-style-type: none"> - Recognizing the symptoms and signs of children with lung diseases, and consequently identifying indications and contraindications for the use of flexible bronchoscope. - Knowing the parts of flexible bronchoscope. - Detection of lung diseases on radiogram and computerized tomography. <p><i>Skills that a student needs to know, without the practical performance:</i></p> <ul style="list-style-type: none"> - Parts and using bronchoscope for the performance of flexible bronchoscopy. - Recognition of tubular size when introducing flexible bronchoscopy in an intubated child. - Video bronchoscopy with accompanying CT scans and radiographs in children with flexible bronchoscopy. <p>After attending classes, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - Flexible bronchoscopy is important for resolving refractory lung infiltrates that do not respond to conservative medication therapy and oxygen therapy, allowing pulmonary reexpansion. - By endoscopic examination of the tracheobronchial tree, we provide the last answer to the question: "What happens to the lungs". - Flexible bronchoscopy with BAL allows insight into the inflammatory elements and the relationship of the immune response of the reactive bronchi to the causative agent (bacterium, virus) - Flexible bronchoscopy with BAL is also used to prepare a patient for lung transplantation, and is used in post-transplantation control.
3. Teaching methods	<p>Lectures: 10 hours</p> <p>Practical work: 10 hours</p>

4. Methods of knowledge assessment and examination	<p>Students' knowledge checking will be performed on a continuous basis.</p> <p>Continuous assessment of knowledge Continuous knowledge and skills assessment will be carried out through Partial exams and Practical exam.</p> <p>Practical Exam Practical Exam entails assessing the skills acquired through all the modules at the end of the course. Evaluation of adopted skills is performed through the fulfillment of the tasks previously defined in the checklist. Each task carries the appropriate number of points. The maximum number of points a student can earn is 40. To pass Practical exam, a student must win at least 22 points. The awarded number of points is added to the other points when forming the final grade.</p> <p>Partial exam Partial exam is a written exam in a form of a test with 30 MCQ questions that will examine the knowledge passed through all the modules. Each correct answer wins 2 points, and maximum is 60 points. In order to pass the exam student must earn at least 33 points. The awarded score is added to the other points and concludes the final score.</p> <p>Final exam If a student has not passed Practical and Partial exam during the semester, or is dissatisfied with the grade obtained, she/he is a candidate for the Final exam. The criterion for taking the theoretical part of the exam is previously completed practical part of the exam.</p> <p>Repeated and Remedial exam Repeated and Remedial exam are conducted according to the previously defined criteria of Final exam.</p> <p>Score is formed by summing all the points earned for each form of knowledge checking.</p> <table><tr><th>Mark</th><th>Points</th><th>Description of mark</th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some mistake</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good but with significant disadvantages</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>< 55</td><td>does not meet the minimum criteria</td></tr></table>	Mark	Points	Description of mark	10 (A)	95-100	exceptional success without mistakes or with minor errors	9 (B)	85-94	above the average, with some mistake	8 (C)	75-84	average, with noticeable mistakes	7 (D)	65-74	generally good but with significant disadvantages	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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6. Literature	<p>Obligatory:</p> <p>– Priftis KN, Anthracopouls MB, Eber E, Kombourlis AC, Wood RE.</p>																					

	<p>Pediatric Bronchoscopy. Karger, Basel; 2010.</p> <p>Additional:</p> <ul style="list-style-type: none"> – Shah Pallav. Atlas of Flexible Bronchoscopy. Taylor&Francis Group, USA;2011. – Khilnani P, Pao M. Pediatric Bronchoscopy. New Delhi: Jaypee Brothers Medical Publishers; 1999. – Selimović A, Karavdić K, Vatrenjak S, Mujičić E, Moro M. Applicability of the flexible bronchoscope to the intubation of children with lung echinococcus during the period between 1995. and 2013. HealthMED 2014;8(3):629-636. – Selimović A, Rančić M, Mujičić E, Mesihović-Dinarević S, Hasanović A, Ristić S, Svetozarević Z. Re-expansion of an Atelectatic Lung through Flexible Bronchoscopy in a Child with Dermatomyositis and Celiac Disease. Acta Fac Med Naiss 2013;30(1):49-53. – Selimović A, Mesihović Dinarević, Pejčić T, Mujičić E, Hasanović A, Ristić S, Banjac N, Pavlović Z. Lymphocyte Subsets in Bronchoalveolar lavage fluid of children with lung infiltrates. Acta Fac Med Naiss 2012;49(8):830-8. – Selimović A, Pejčić T, Rančić M, Mujičić E, Bajrović K. Bronchoscopy and Bronchoalveolar lavage in children with lower airway infection and most common pathologic microorganisms isolated. Acta Fac Med Naiss 2012;29(1):17-21.
7. Note	<p>Maximum number of students for this course is 10.</p> <p>All forms of teaching are mandatory. The number of students per assistant can be up to six. Exercises at the Pediatric Clinic CCU Sarajevo can be attended by students with a valid sanitary booklet and proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Student consultation period: every day from 12 am to 2 pm with prior announcement by e-mail: pedijatrija@kcus.ba or e-mail: amina.selimovic@mf.unsa.ba</p>

COURSE PLAN: FLEXIBLE BRONCHOSCOPY IN PEDRIATIC PULMOLOGY

Week 15.	Form of teaching	Hours
Tuesday	Lecture: The history of bronchoscopy in the world and in Bosnia and Herzegovina. Bronchoscopy efficiency in Child Pulmology. Anatomy of respiratory system (larynx, trachea, bronchi, lung). Bronchopulmonary segments. Anterior and posterior approach to the anatomy of the tracheobronal tree. Equipment and room for performing flexible bronchoscopy Anesthesia and sedation in flexible bronchoscopy in childhood	3
	Practice work: Overview of the tracheobronal tree with a flexible bronchoscope Equipment, operating room, intensive care, anesthesia and sedation in a flexible child bronchoscopy.	3
Wednesday	Lecture: Indications and contraindications for the flexible bronchoscopy of childhood. Complications of flexible bronchoscopy of childhood (mechanical, physiological, bacteriological). Bronchoalveolar lavage and analysis of bronchialveolar lavage (equipment for performing bronchoalveolar lavage, procedure for performing bronchoalveolar lavage, bronchoalveolar wash analysis)	2
	Practice work: Indications, contraindications, complications of a flexible bronchoscopy of childhood. Operating room and work with a patient with bronchoscope.	3
Thursday	Lectures: Flexible bronchoscopy in lung diseases (pneumonia, bronchitis, tuberculosis, bronchiectasis). Modern methods for flexible bronchoscopy of children's age - Endobroncheal ultrasound bronchoscopy (EBUS) - Autofluorescence Bronchoscopy (AFB) - Electromagnetic Navigation Bronchoscopy (ENB) - Transbronchial lung biopsy (TBB) - Transbronchial pulmonary aspiration (TBNA) Methods of interventional bronchoscopy The role of childbearing flexible bronchoscopy in lung transplantation - The role of a flexible bronchoscope in the preoperative preparation of pediatric patients for lung transplantation - The role of flexible bronchoscopy after lung transplantation	3
	Practice work: Bronchoalveolar lavage and analysis of bronchialveolar lavage. Practical performance of bronchoalveolar lavage.	2
Friday	Practical exam	2

	Partial exam	2
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (Septembar examination term)	

Code: MFSE 1016		Course title: BIVARIATE AND MULTIVARIATE ANALYSIS (BIostatISTICS 2)	
Level: undergraduate	Study year: V	Semester: X	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Semra Čavaljuga, MD PhD; Senior assistant Enisa Ademović, MD MSc; Senior assistant Lejla Džananović, MD MSc.			
1. Overall aim	Students should master the advanced biostatistics methods in data analysis in medical research: bivariate and multivariate analysis advancing to previously learned descriptive biostatistics and univariate biostatistical analysis as well as basics of analytical epidemiological studies. Objective of this course is that students are able to design and conduct a small study with an adequate statistical analysis, presentation and justification of findings. The purpose of this course is that students master all elements and applications of advanced biostatistical methods: bi- and multivariate analysis relevant for medical research, analysis of own data, and critically appraise their findings.		
2. Course objectives	<p>Students should master the following knowledge:</p> <p>Module 1. Recapitulation of descriptive and basic inferential biostatistics The objective of this lecture is that students improve their descriptive biostatistics and univariate analysis knowledge in order to be able to adopt new knowledge in multivariate analysis methods. Particularly, measures of central tendencies and measure of variation, probability models (especially Normal distribution), confidence interval and <i>p</i>-value in hypothesis testing results interpretation, parametric tests, linear regression and correlation will be addressed.</p> <p>Module 2. Measures of disease frequency and 2 by 2 table analysis – bivariate analysis The objective of this lecture is that students improve their knowledge in understanding of epidemiological disease approach with disease frequency quantification – measuring incidence (cumulative and rate) and prevalence (point and period) with probability, risk and odds in describing population’s health status. Special accent will be on repeating analytical epi methods principles (case-control and cohort studies) as well as on medical practice examples designs of these studies, development of contingency tables (2 by 2) exposition and outcome variables relevance for 2x2 tables, analytics of outcomes as per cases and exposed – calculation of an appropriate measure of association with confidence interval.</p> <p>Module 3. Testing quantitative and qualitative variables differences (Test of comparison of two means; Chi-square (χ^2) test for 2x2 and larger contingency tables) The objective of this lecture is introduction to fundamental terms in analysis and differences between two quantitative variables – differences between two means, dependent and independant samples, standard error of a mean, normal distribution tables, Student t-distribution, use of Normal and Student t distribution tables, and concluding for a given probability level testing two quantitative variable in medical researches with examples coming from practice.</p>		

	<p>Students will be introduced to work in a statistical software packages. At the same time, students will learn basics of Chi-square (χ^2) test and its application in qualitative variables medical research, working with data sets coming from a practice.</p> <p>Module 4. Proportion and binomial distribution The objective of this lecture is mastering fundamental terms in analysis of binary outcomes – proportion and binomial distribution, standard error of a proportion and its application, z-test, with practical analysis on data sets collected from various researches in statistical software.</p> <p>Module 5. Pearson and Spearman correlation The objective of this lecture is learning correlation and its measuring, with differentiating correlation testing based on numerical or qualitative variables and understanding given results. Statistical software will be used for this.</p> <p>Module 6. Analysis of variance, multivariate analysis, regression analysis The objective of this lecture is introduction to analysis of variance, multivariate statistical analysis either as multivariate variance analysis or regression analysis.</p>
3. Learning outcomes (Knowledge, skills and competences)	<p><i>During this elective course students will develop the following knowledge, skills and competencies through working on practical examples:</i></p> <ul style="list-style-type: none"> – Fully master measures of disease frequency in population (incidence and prevalence), master: probability, risk and odds in describing risk factors in description of a population health status; – Analytical epidemiology methods/studies principles and applications (case-control and cohort); creation of contingency tables; choosing an adequate measure of association; calculation of confidence interval; understanding of measure of effect for certain exposure; – Fully master basic terminology and definitions and concept in: binary outcomes analysis; proportion and binomial distribution; standard error of proportion calculation; z-test and t-test; – Application and understanding of t-test and other most commonly applied parametric tests – Chi-square (χ^2) test – application and understanding – Pearson and Spearman correlation - application and understanding – Fundamental principles in choosing and analysis of variance - multivariate analysis and regression analysis – Designing a small pilot-study with data and results statistical analysis.
4. Teaching methods	<p>In semester, there will be total of:</p> <ul style="list-style-type: none"> - 8 lecture hours (7 lectures by a lecturer and 1 – the last one in a semester for students' papers presentation) - 10 hours of exercises - 2 hours for preparation of a paper/seminar <p>Lectures are organised as «sandwich» - exchange of collective learning and individual learning thru interactive lecturer approach.</p> <p>All exercises are organised interactively, with examples coming from real practice in the Department's computer lab.</p>

	<p>Student group are composed of 5-7 maximum students in each. Each of the groups will work on a project development throughout entire course. This project will be presented publicly to all students at the end of the course. Seminar paper is mandatory. Students will work individually on their paper on predetermined topics. During this paper work, students will go to the field to conduct a small pilot research, resulting in research (with minimum 100 cases/participants in a study divide in two groups for a quality bi-variant analysis). Two contact hours are planned for this research preparation.</p>																											
5. Method of knowledge assessment and examination	<p>Knowledge assessment will be performed through:</p> <ul style="list-style-type: none">– short tests / quizzes – total of 2– individual work on seminar paper/project on given topic with consultation with course professor and assistants with presentations– written exam based on MCQ methodology with 4-5 given answers on 2/3 of the questions; 1/3 of the questions will be in the essay form or calculation. It will be organized after the completion of lectures.– oral final exam will be organized for students wanting a higher grade or exceptional students. <p>Grading will be performed by points given for every part of the studying activity and knowledge testing during the semester and on the final exam, by the following structure:</p> <table><tr><td>– short tests / quizzes</td><td>20% of the final grade</td></tr><tr><td>– written exam</td><td>40% of the final grade</td></tr><tr><td>– seminar paper and presentation</td><td>40% of the final grade</td></tr></table> <p>Final grade will be calculated as a pondered arithmetic mean of all grades given throughout semester (i.e. joint arithmetic mean). Grading of writing parts of the exam will be performed with respect to rules and regulations of syllabi harmonization of Bologna studying for every single exam term as following:</p> <table><tr><th>Grade</th><th>No of points</th><th>Grade description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>Exceptional with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above average with few errors</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with noticeable errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Good, with significant errors</td></tr><tr><td>6 (E)</td><td>55-64</td><td>Meets minimal criteria</td></tr><tr><td>5 (F, FX)</td><td>< 55</td><td>Fails to meet minimal criteria</td></tr></table> <p><u><i>In order to be given a passing final grade, student must obtain a passing grade from all forms of knowledge testing.</i></u></p>	– short tests / quizzes	20% of the final grade	– written exam	40% of the final grade	– seminar paper and presentation	40% of the final grade	Grade	No of points	Grade description	10 (A)	95-100	Exceptional with minor errors	9 (B)	85-94	Above average with few errors	8 (C)	75-84	Average, with noticeable errors	7 (D)	65-74	Good, with significant errors	6 (E)	55-64	Meets minimal criteria	5 (F, FX)	< 55	Fails to meet minimal criteria
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6. Literature	<p>Required:</p> <ul style="list-style-type: none">- Course hand-outs- Essex-Sorlie D. Medical Biostatistics and Epidemiology. Appleton & Lange; 1995. <p>Additional:</p> <ul style="list-style-type: none">- Kirkwood BR and Sterne JAC. Essentials of Medical Statistics. Blackwell																											

	<p>Science Ltd; 2003.</p> <p>- Dawson B. and. Trapp RG. Basic & Clinical Biostatistics. McGraw-Hill; 2004.</p>
7. Remarks	<p>It is forbidden to bring unauthorized copies of literature to classes!</p> <p>Minimum number of students for this course is 5, while 30 is the maximum.</p> <p>All forms of classes are obligatory. Exercises at the Department of Epidemiology on Medial faculty University of Sarajevo can be attended by students with proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Seminar paper should deliver the latest 2 days prior to presentation!</p> <p>Failed or missed quizzes can be re-taken on the Final exam if a student wishes so.</p> <p>Consultation hours are every day 08.30-10.00 and 13.00-14.30 with prior announcement to the Department's Secretary or by email: epidemiologija@mf.unsa.ba.</p>

COURSE PLAN:
BIVARIATE AND MULTIVARIATE ANALYSIS (BIOSTATISTICS 2)

Week 15.	Teaching method	Number of hours
Tuesday	Lecture: Descriptive biostatistics Probability; statistical inference	1
	Lecture: Basic principles on bivariate statistical analysis	2
	Practicals: Practical examples on descriptive biostatistical methods Statistical inference – practical examples	1
	Practicals: Practical examples on bivariate analysis in: case-control studies (calculation and interpretation of appropriate measures of association) cohort studies (calculation and interpretation of appropriate measures of association)	2
Wednesday	Lecture: Analysis of binary outcomes: proportions and binomial distribution, standard error of proportion; z-test, t-test	1
	Practicals: Practical examples of analysis of binary outcomes: proportions and binomial distribution, calculation of standard error of proportion; z-test, t-test – practical examples	2
	Short test/quiz	
	Seminar: Seminar paper topics distribution and discussion	1
Thursday	Lecture: Hypothesis testing; types of hypothesis tests; testing association between qualitative and quantitative variables	2
	Practicals: Practical examples of calculations and results interpretation of parametric and non-parametric statistical tests; correlation coefficient	2
	Short test/quiz	
	Seminar: Seminar paper topics distribution, discussion	

		1
Friday	Lecture: Analysis of variance, multivariate analysis of variance, regression analysis Practicals: Practical examples of application of ANOVA and multivariate analysis techniques	2 3
Week 17-18	Final exam (regular examination term)	
Week 19-20	Final exam (make-up examination term)	
September	Final exam (September examination term)	