

FOURTH YEAR

SEVENTH SEMESTER (WINTER)						
Code	Course Title	L	P	S	TCH	ECTS
MFSE 0701	Internal Medicine	200	200		400	27
MFSE 0702	Nuclear Medicine	15	15		30	2
MFSE 0703-0712	Elective Course 1	10	10		20	1
	TOTAL	225	225		450	30

Elective courses:

MFSE 0704 Immune and Nephrological Aspects of Kidney Transplantation

MFSE 0705 Nuclear Endocrinology

MFSE 0707 Palliative Care

MFSE 0708 Pediatric Nuclear Medicine

MFSE 0709 PET/CT in Clinical Practice

MFSE 0710 Rheumatoid Arthritis

MFSE 0711 Tuberculosis

MFSE 0712 Chronic liver diseases

MFSE 0713 Toxic Chemicals and Human Health – IZVEDBENI

Code: MFSE 0701	Course title: INTERNAL MEDICINE		
Level: clinical	Study year: IV	Semester: VII	ECTS: 27
Status: obligatory	Total contact hours: 400		
Prerequisites	According to the Study Regulation		
Lecturers: Professor Senija Rašić, MD PhD; Professor Bakir Mehić, MD PhD; Professor Mirza Dilić, MD PhD; Professor Šekib Sokolović, MD PhD; Professor Halima Resić MD PhD; Professor Alma Sofo-Hafizović, MD PhD; Professor Belma Paralija, MD PhD; Assistant Professor Azra Husić-Selimović, MD PhD; Assistant Professor Damir Rebić, MD PhD; Assistant Professor Amela Dizdarević-Bostandžić, MD PhD; Assistant Professor Ismana Šurković, MD PhD; Assistant Professor Akif Mlačo, MD PhD; Assistant Professor Alen Džubur, MD PhD; Senior ass. Nadža Zubčević, MD PhD; Senior ass. Medžida Rustempašić, MD PhD; Lejla Ibričević-Balić, MD PhD; Azra Durak-Nalbantić, MD PhD; Enisa Hodžić, MD PhD; Džanela Prohić, MD PhD; Vanja Karlović, MD MSc; Alden Begić, MD MSc; Amela Bećiragić, MD PhD			
1. Overall aim	The overall aim of the Internal Medicine Course is to learn etiology, pathogenesis, clinical presentation, diagnostic procedures and therapeutic modalities of internal medicine diseases.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>PULMOLOGY</p> <p>Module 1. Physiology of lungs in the function of clinical events The aim of the module is to integrate knowledge from anatomy, physiology, pathophysiology and lung function to better understanding clinical events.</p> <p>Module 2. Diagnostic and therapeutic procedures in pulmonology The goal of the Module is to introduce a student with diagnostic and therapeutic procedures from pulmonology, as well as with interpretation and analysis of chest X-ray, differential diagnosis, planning of further diagnosis. Case report with discussion.</p> <p>Module 3. Asthma, asthma division Students will gain knowledge of bronchial asthma, allergic and non-allergic nature, hypersensitivity of the tracheobronchial system, diagnosis and treatment of asthma according to GINA guidelines.</p> <p>Module 4. Chronic Obstructive Pulmonary Disease (COPD), Acute Exacerbations of COPD The aim of the module is to introduce students with COPD, exacerbations of COPD, divisions and management of HOPB according to GOLD guidelines. Case report with discussion.</p> <p>Module 5. Bronchiectations, cystic fibrosis (mucoviscidosis) Through this module, students will learn about the origin and significance of bronchiectations, diagnosis and treatment, as well as basic knowledge about mucoviscidosis and its complications on the lungs.</p> <p>Module 6. Tumors of lungs and pleura Within this module students will gain knowledge about lung carcinoma, divisions, symptomatology, the way of determining the stage of the disease, diagnosis and treatment. There will also be spoken about malignant pleural</p>		

	<p>mesothelioma, symptomatology, diagnosis and therapy of malignant pleural mesothelioma.</p> <p>Module 7. Non-specific infections of the lower respiratory tract The aim of the module is to introduce a student with acute bronchitis, community acquired pneumonia - typical and atypical, intrahospital pneumonia, pneumonia in immunocompromised persons, abscess of the lung.</p> <p>Module 8. Tuberculosis The aim of the module is to introduce a student with latent tuberculous infection, tuberculosis disease, and complications (lymphogenic and hematogenic spread), way of diagnostics and by implementing a DOTS strategy for treatment of tuberculosis. Tuberculosis resistant forms and the National Program for the Prevention and Treatment of Tuberculosis will be considered.</p> <p>Module 9. Acute Respiratory Distress Adult Syndrome (ARDS), pleural inflammation (pleurisy), pneumothorax Students will be introduced with pathogenesis and pathophysiology, symptomatology, clinical picture, diagnosis and treatment of ARDS. In addition, the student should acquire knowledge of pathophysiology and diagnosis of pleurisy, pleural effusion. Differential diagnosis and principles for the treatment of pleural effusion, pneumothorax and tension pneumothorax will be considered.</p> <p>Module 10. Pulmonary arterial hypertension and chronic pulmonary heart disease Students will be introduced with etiology, classification, pathophysiology, methods of diagnosis and treatment of pulmonary arterial hypertension. Students should also be familiar with the etiology, pathophysiology of chronic pulmonary heart disease, diagnosis and treatment of chronic pulmonary heart disease.</p> <p>Module 11. Deep Venous Thrombosis (DVT) and Pulmonary Thromboembolic Disease (PTE) The module deals with the risk factors and pathophysiology of DVT, PTE and acute pulmonary heart. The clinical picture, diagnostic steps and PTE treatment principles will be considered. Within this module, students will be introduced with the methods of prevention, possible complications of DVT and PTE.</p> <p>Module 12. Acute and chronic respiratory insufficiency, oxygen therapy, mechanical ventilation of the lungs The module deals with elements of clinical picture and diagnostics of acute and chronic respiratory insufficiency, their division, way of diagnosis and treatment.</p> <p>Module 13. Sarcoidosis The aim of the module is to familiarize the student with the etiology of sarcoidosis, thoracic and out-thoracic manifestations of the disease, the way of diagnosis, evaluation of the disease activity and the ways of treatment.</p>
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Module 14. Interstitial lung diseases, diffuse illnesses of pulmonary parenchyma

Within this module, students need to acquire knowledge about idiopathic pulmonary fibrosis, idiopathic interstitial pneumonies, principles of diagnosis, classification and treatment.

Module 15. Lung disease caused by dust, toxic gases and vapors

The module treats lung diseases caused by mineral dusts, organic dusts, (hypersensitivity pneumonitis) and lung damages caused by toxic fumes and gases.

Module 16. Central sleep apnoea (CSA)

Within this module, students will be familiar with the pathophysiology, clinical picture, and the diagnosis of CSA. Differential diagnosis of CSA and ways of treating CSA will be considered.

CARDIOLOGY**Module 1. Diagnostic and therapeutic procedures in cardiology**

Students will gain knowledge about diagnostic and therapeutic procedures in cardiology.

Module 2. Heart failure. Heart transplantation

The goal of the Module is to introduce a student with a clinical picture of heart failure (acute and chronic left heart failure, right heart failure and global heart failure), differential diagnosis and therapeutic approach in the treatment of heart failure, including heart transplantation.

Module 3. Coronary heart disease

The goal of the Module is to introduce a student with acute coronary syndrome, symptoms, diagnosis, STEMI and NSTEMI infarction, pre-hospital and hospital protocol, medication and intervention therapy.

Module 4. Heart rhythm disorders

The goal of the Module is to introduce a student with various heart rhythm disorders, their clinical presentation and ECG characteristics, the method of treatment and electrostimulation.

Module 5. Arterial hypertension

The goal of the Module is to introduce a student with etiology, clinical division, clinical manifestations, diagnostic and therapeutic procedures in the treatment of hypertension and hypertensive crisis.

Module 6. Heart defects

The goal of the Module is to introduce a student with etiopathogenesis, clinical picture and treatment of the most common congenital heart disease and acquired valvular heart defects.

Module 7. Diseases of the endocardium, myocardium and pericardium

The goal of the Module is to introduce a student with a clinical picture and treatment of cardiac valve diseases and subvalvular part of the heart caused by the microbes, as well as diseases of the endocarditis of the heart cavities. Within the Module, a student will be introduced with clinical manifestations

	<p>of pericardial disease, diagnosis, therapy, complications, heart tamponade, intervention in tamponade.</p> <p>Module 8. Rheumatic fever. Secondary heart diseases The goal of the Module is to introduce a student with etiopathogenesis, clinical picture and rational treatment of inflammatory heart disease, associated with the infection of virulent types of streptococcus, and to introduce a student with a heterogeneous group of myocardial diseases of different etiologies.</p> <p>Module 9. Urgent conditions in cardiology The goal of the Module is to introduce a student with malignant heart rhythm disorders, syncope, cardiogenic shock, heart failure and basic principles of cardiopulmonary resuscitation.</p> <p>ANGIOLOGY</p> <p>Module 1. Etiopathogenesis of atherosclerotic disease The goal of the Module is to introduce a student with disorders of the arterial vessel endothelial function, a disorder of metabolism of nitric oxide, cholesterol, HDL cholesterol, platelet aggregation and adherence of leukocytes, respectively, in the events leading to atherosclerosis of the blood vessel, and diagnostic measures and therapy to be undertaken.</p> <p>Module 2. Atherosclerotic disease The aim of the module is to introduce students to the incidence, prevalence, morbidity and mortality from atherosclerotic disease, and the impact of multiple risk factors for atherosclerosis, summarizing risk factors, scoring systems prediction of fatal outcome - HeartScore, Framingham Score, New Pooled Cohort Score, as well as the importance of reduction a rapid risk factor on the overall reduction of morbidity and mortality.</p> <p>Module 3. Diabetic angiopathy The goal of the Module is to introduce a student with etiopathogenesis of diabetic angiopathy, sugar metabolism disorders and correlation with hemoglobin A1c, nitric oxide, LDL cholesterol, and the influence of these factors on the development of diabetic angiopathy, disease grading, diagnosis and therapy of diabetic angiopathy.</p> <p>Module 4. Inflammatory arteries disease. Chronic venous insufficiency The aim of the Module is to introduce a student with etiopathogenesis of arterial blood vessel diseases, Morbus Buerger, Morbus Takayasu, Morbus Raynaud, the effect of risk factors on the development of endarteritis, a combination of inflammatory processes on the arteries and associated veins, clinical picture, diagnostic methods, differential diagnosis and therapy. Within of this Module, a student will be introduce with the etiology and pathophysiology of venous insufficiency, CEAP classification, clinical picture, laboratory diagnostics, functional tests, color Doppler diagnostics, CT diagnostics, as well as medical and compressive treatment of chronic venous insufficiency, and treatment of venous ulcers with a hyperbaric chamber.</p> <p>Module 5. Venous thromboembolism</p>
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The goal of the Module is to introduce a student with etiological causes of deep vein thrombosis, symptoms and signs, clinical picture, physical examination, risk score, Wells and Geneva score, continuous and color Doppler examination, principles, type and monitoring of anticoagulant therapy, antithrombotic therapy, bleeding in anticoagulant therapy, the prevention of deep vein thrombosis and embolism.

GASTROENTEROLOGY AND HEPATOLOGY

Module 1. Diagnostic and therapeutic procedures in gastroenterology

The goal of the Module is to introduce a student with diagnostic procedures for gastroenterological and hepatologic patients, with the basic therapeutic principles of treating these patients.

Module 2. Diseases of esophagus, stomach and duodenum

The goal of the Module is to introduce a student with the most common disorders of esophagus, stomach and duodenum, and the importance of infection with *Helicobacter pylori*.

Module 3. Diseases of the small and large intestine. Inflammatory bowel diseases

The aim of the module is to introduce students with the most common diseases of the small and large intestine, as well as with inflammatory bowel diseases, their etiopathogenesis, clinical picture, diagnosis, differential diagnosis and therapy.

Module 4. Hepatobiliary diseases. Liver transplantation

The goal of the Module is to introduce a student with the most common liver and biliary system diseases, liver cirrhosis, autoimmune diseases of the liver, liver transplantation and liver disease during pregnancy.

Module 5. Pancreatic diseases. Pancreatic transplantation

This module will evaluate acute and chronic pancreatitis. A student will be informed about basic principles of pancreatic transplantation.

Module 6. Premalignant lesions, benign and malignant tumors of the digestive organs. Interventional gastroenterology

The aim of the module is to familiarize students with precancerous lesions in gastroenterology and cancers of the digestive organs, diagnosis and therapy. In this module, the student will be introduced to the possibilities of gastrointestinal endoscopy and intervention procedures.

Module 7. Urgent conditions in gastroenterology

The goal of the Module is to introduce a student with emergency conditions in gastroenterology.

ENDOCRINOLOGY

Module 1. Diabetes. Metabolic disorders, obesity and malnutrition

The goal of the module is to introduce a student with definition and classification, etiology, pathogenesis, clinical picture and diagnosis and treatment of diabetes, insulin resistance, pre-diabetes and metabolic syndrome, as well as obesity, malnutrition diseases, fat metabolism disorders and atherosclerosis.

Module 2. Pituitary and hypothalamus diseases

The goal of the Module is to introduce a student with clinical picture, diagnosis and treatment of pituitary and hypothalamic diseases (functional and non-functional tumors, inflammation, hypopituitarism, diabetes insipidus, maintenance of osmolarity of body fluids).

Module 3. Thyroid and parathyroid gland diseases

The goal of Module is to learn the function and regulation of thyroid function tests, thyroid diseases (hyper- and hypofunction), thyroiditis, thyroid cancer, and thyroid diseases in pregnancy. Within this Module, the student will be familiar with primary and secondary hyperparathyroidism, hypoparathyroidism, and pseudohypoparathyroidism.

Module 4. Adrenal glands diseases. Gonadal diseases

The goal of the Module is to introduce a student with hyper and hypoaldosteronism, Cushing's syndrome, adrenal insufficiency, pheochromocytoma and adrenal gland hyperplasia. The student will also be familiar with the action of gonadotropin and steroid hormones, hormone-active ovarian tumors, polycystic ovaries, premature puberty, reproductive disorders, gonadal disorders, disrupted menstrual cycles and ovulation, menopause, and male hypogonadism, testicular dysfunction, impotence, male infertility, gynecomastia, testicular tumors.

Module 5. Paraneoplastic endocrine syndromes

The goal of the Module is to introduce a student with paraneoplastic hormone secretion, hypoglycemia, hyperreninism, erythrocytosis, paraneoplastic secretion of peptides not related to endocrine syndrome, neuroendocrine tumors, treatment of advanced breast tumors and prostatic carcinoma, consequences of the treatment of malignant diseases on the endocrine system.

Module 6. Emergencies in endocrinology

The goal of the Module is to introduce a student with emergency conditions in the endocrinology (diabetes ketoacidosis and coma, hyperosmolar hyperglycemic coma, hypoglycemic coma, severe hyponatraemia, acute hypocalcaemia, Addison's cerebral pheochromocytoma crisis, thyrotoxic crisis, chimeric coma, diabetes insipidus).

NEPHROLOGY**Module 1. Diagnostic and therapeutic procedures in nephrology**

The goal of the Module is to introduce the student with diagnostic and therapeutic procedures in nephrology.

Module 2. Disorders of metabolism of body water, electrolytes and acido-base status

The goal of the Module is to familiarize the student with maintenance of homeostasis of water, electrolyte and acid-base balance, and correction of their disorders. Within this Module, the student will be familiar with the etiological classification, pathogenetic mechanisms, clinical manifestations, diagnosis and therapy of tubulointerstitial nephropathies.

Module 3. Infections and other urinary system diseases

	<p>The goal of the Module is to introduce the student with etiopathogenetic aspects, clinical picture, diagnosis and treatment of urinary infections, with pathogenesis, evaluation and treatment of kidney and urinary system stones.</p> <p>Module 4. Tubulointerstitial nephropathy Within this Module, the student will be familiar with the etiological classification, pathogenetic mechanisms, clinical manifestations, diagnosis and therapy of tubulointerstitial nephropathies.</p> <p>Module 5. Glomerulopathies The goal of the Module is to introduce the student with the causes and immunopathological classification of glomerulopathies, their symptomatology, diagnostics and principles of treatment.</p> <p>Module 6. Diabetic nephropathy Within this Module, the student will be familiar with diabetic nephropathy as the most common cause of end-stage renal disease, factors involved in the pathogenesis of this glomerulopathy and mechanisms of glomerular injury, as well as renal pathomorphological changes, clinical picture, diagnostic and therapy.</p> <p>Module 7. Vascular diseases of the kidneys The goal of the Module is to introduce a student with the definition and etiopathogenetic division of vascular kidney lesions, type of vascular damage, their clinical presentation, diagnosis, differential diagnosis and therapy.</p> <p>Module 8. Acute and chronic renal insufficiency The goal of the Module is to introduce the student with the etiology and pathophysiology, clinical picture, diagnostic methods and principles for the treatment of acute kidney injury.</p> <p>Module 9. Chronic renal disease. End stage renal disease The goal of the Module is to introduce the student with the etiology and pathophysiology, clinical picture, diagnostic methods and principles for the treatment of chronic renal failure, clinical features of uremic syndrome, methods of active treatment (hemodialysis, peritoneal dialysis and kidney transplantation).</p> <p>HEMATOLOGY</p> <p>Module 1. Diagnostic and therapeutic procedures in hematology The aim of Module is to introduce student with diagnostic and therapeutic procedures in hematology.</p> <p>Module 2. Hematopoietic stem cell diseases The goal of the Module is to introduce students with epidemiology, etiology, clinical picture, diagnosis and treatment of myelodysplasia, myelodysplasia and myeloproliferation.</p> <p>Module 3. Erythropoietic diseases and syndromes Within this Module, the student will be familiar with the etiology, clinical picture, diagnosis and treatment of anemia and anemia syndrome.</p>
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	<p>Module 4. Lymphoproliferative diseases The goal of the Module is to introduce students with epidemiology, etiology, clinical picture, diagnosis and treatment of lymphoproliferative disorders. New diagnostic and therapeutic algorithms.</p> <p>Module 5. Platelet and coagulation diseases The goal of the Module is to introduce students with etiopathogenesis, clinical picture, diagnosis and treatment of thrombocyte and coagulation diseases.</p> <p>Module 6. Transfusion medicine The goal of the Module is to introduce students to the determination of blood groups, their clinical significance, and the treatment of blood products.</p> <p>Module 7. Hematopoietic stem cells transplantation The goal of the Module is to introduce to hematopoietic stem cell transplantation as the most modern hematologic treatment methods.</p> <p>RHEUMATOLOGY</p> <p>Module 1. Autoimmune diseases The goal of the module is to introduce a student with inflammatory rheumatic diseases of the autoimmune genesis, clinical picture, diagnostic criteria and therapy (rheumatoid arthritis, systemic lupus erythematosus, antiphospholipid syndrome, dermatomyositis, polyomyositis, scleroderma, vasculitis, M. Behcet, Stel's disease).</p> <p>Module 2. Degenerative rheumatic diseases The goal of the Module is to introduce a student with degenerative rheumatic diseases, etiopathogenesis, clinical picture, diagnostic criteria and therapy (arthrosis, spondylosis).</p> <p>Module 3. Metabolic bone diseases and infectious arthritis. Osteoarthritis and spondilopathies The aim of the module is to introduce a student with metabolic rheumatic diseases, their etiopathogenesis, clinical picture, diagnostic criteria and therapy (severe arthritis, bacterial septic arthritis, acute rheumatic fever) with spondyloarthropathies, etiopathogenesis, clinical picture, diagnostic criteria and therapy (reactive arthritis, morbus Reiter, spondylitis ankylosans, psoriatic arthritis, enteropathic arthritis), and with etiopathogenesis, clinical picture, diagnostic criteria and treatment of soft structures diseases (fibromyalgia, tendinitis, enthesitis, burzitis).</p>
3. Learning outcomes (knowledge, skills and competences)	<p>Students will acquire knowledge necessary to understand etiology, pathogenesis, clinical symptoms and signs, diagnostic procedures and therapeutic modalities of various internal medicine diseases. The aim in the learning process is to develop problem oriented type of learning and skills from the field of internal medicine and to integrate broad spectrum from different fields of preclinical and clinical medicine.</p> <p>Through the lectures the students will gain following knowledge and competences in every of the above mentioned disciplines:</p>

- Understand internal disease pathways, i.e. etiology and pathogenesis.
- Understand, know and recognize clinical symptoms and signs.
- Know indications and protocols for therapeutic procedures.
- Know the treatment modalities and treatment complications.

Through the practical part in internal medicine the students will acquire following skills and be able to independently perform:

- History taking
- Physical examination and diagnosis setting
- Formulation of complete differential diagnosis
- Decision-making for initial evaluation and management
- Presentation of findings and articulation of prioritized plan
- Ordering and interpretation of appropriate tests to evaluate different organ system function and pathology
- Assessment of need for hospital admission or emergency department referral in the outpatient setting
- Comprehensive medical care of hospitalized patients
- Assessment of the need for referral to specialist for evaluation and management
- Assessment of need for continued hospitalization of inpatients and transition to outpatient care
- Identification of vital parameters
- Oxygen therapy
- Basic life support
- Placement of nasogastric/nasoenteral tube
- Fingertstick blood glucose determination
- Arterial puncture for blood gas analysis
- Arterial blood gas analysis
- Urinary bladder catheterization
- Rectal showers
- Arterial line placement for hemodynamic monitoring
- ECG registration and interpretation
- Interpretation of chest/abdominal X-ray
- Advanced cardiac life support
- Abdominal paracentesis for ascites fluid analysis
- Therapeutic abdominal paracentesis for symptom relief

Through the practical part at different clinics the students will be familiar with the indications and interpretation of the results:

PULMOLOGY

- Sputum sampling
- Spirometry
- Bronchoscopy with BAL
- Bronchoscopy with transbronchial biopsy
- Transthoracic US-guided parenchymal needle biopsy

CARDIOLOGY

- ECG
- Holter monitoring
- Cardioversion and defibrillation
- Cardiac pacing, temporary

- Cardiac catheterization
- Coronary angiography and ventriculography
- Percutaneous coronary intervention
- Intraaortic balloon pump insertion and management
- Coronary stent placement
- Angioplasty

ANGIOLOGY

- Ankle-brachial index
- Vascular function test
- Color –Doppler

GASTROENTEROLOGY AND HEPATOLOGY

- Upper GI endoscopy
- Colonoscopy
- Enteroscopy
- Endoscopic biopsy of GI tract
- ERCP with/without biliary stent placement
- Upper endoscopy with banding of esophageal varices
- Transcutaneous liver biopsy

ENDOCRINOLOGY

- Plasma growth hormone, IGF-1, ACTH, testosterone (total and free), gonadotropin (LH and FSH) prolactin, aldosterone, C-peptide, anti-thyroglobulin, thyroid antibodies, renin activity measurement
- Serum thyroid hormones t measurement
- Urinary metanephrine, vanillylmandelic acid, catecholamines, 24 hour urine free cortisol measurement
- ACTH- stimulation test
- OGTT
- Dexamethasone suppression test

NEPHROLOGY

- Vascular catheter placement (jugular approach) for urgent hemodialysis
- Renal biopsy
- Hemodialysis
- Plasmapheresis
- Peritoneal dialysis

HEMATOLOGY

- Peripheral blood smear examination
- Manual differential count
- Bone marrow aspirate and biopsy
- Leukapheresis
- Lymph node FNA versus excisional biopsy
- HLA typization
- Cross matching tests
- Stem cell differentiation and preparation for allogenic transplantation

REUMATHOLOGY

- Arthroscopy
- Microscopic examination for crystals

	<ul style="list-style-type: none"> - Intra - articular injection of corticosteroid - Bursa injection - Trigger point injection
4. Teaching methods	<p>Total hours: Lectures: 200 hours Practical work: 200 hours</p> <p>Pulmology Lectures: 36 hours Practical work: 36 hours</p> <p>Cardiology Lectures: 38 hours Practical work: 38 hours</p> <p>Angiology Lectures: 20 hours Practical work: 20 hours</p> <p>Gastroenterology and hepatobilliary diseases Lectures: 32 hours Practical work: 32 hours</p> <p>Endocrinology Lectures: 32 hours Practical work: 32 hours</p> <p>Nephrology Lectures: 20 hours Practical work: 20 hours</p> <p>Hematology Lectures: 20 hours Practical work: 20 hours</p> <p>Rheumatology Lectures: 10 hours Practical work: 10 hours</p> <p>Block 1. Cardiology, Angiology, Gastroenterology and hepatobilliary diseases</p> <p>Block 2. Pulmology</p> <p>Block 3. Nephrology, Hematology, Endocrinology, Rheumatology</p>

<p>5. Method of knowledge assessment and examination</p>	<p>- Continuous knowledge and skills assessment will be carried out through Partial exam from Pulmology and three (3) Practical exams after each block teaching.</p> <p>Partial exam from Pulmology contains a total of 20 MCQ questions, each correct answer brings 0.5 points. A minimum of 5.5 points, a maximum of 10 points shall be deemed to be passed the student's examination.</p> <p>Practical exam 1: Testing practical knowledge and skills from Pulmology over the issues defined in the check lists. Practical exam 1 will be considered passed if the student wins at least 2.5 points, a maximum of 5 points.</p> <p>Practical exam 2: Testing practical knowledge and skills from Cardiology, Angiology, Gastroenterology and hepatobilliary diseases over the issues defined in the check lists (3 check lists). Practical exam 2 will be considered passed if the student wins at least 2.5 points, a maximum of 5 points on each check list (a total of at least 8 points, and maximum 15 points).</p> <p>Practical exam 3: Testing practical knowledge and skills from Endocrinology, Nephrology, Hematology and Rheumatology over the issues defined in the check lists (4 check lists). Practical exam 3 will be considered passed if the student wins at least 2.5 points, a maximum of 5 points on each check list (a total of at least 11 points, and maximum 20 points).</p> <p>To access the final exam, the student must have successfully completed Practical exam 1, Practical exam 2 and Practical exam 3. If the student has not passed the Partial exam from Pulmology, that part of the exam must be laid in writing before the final exam.</p> <p>Final exam Final exam is oral examination of knowledge based on 9 selected exam questions printed on the test card:</p> <ul style="list-style-type: none"> - from the subject area of Cardiology 2 questions - from the subject area Angiologija 1 question - from the subject area Gastroenterology and Hepatology 2 questions - from the subject area Endocrinology 2 questions - from the subject area Nefrology 1 question - from the subject area Hematology 1 question - from the subject area of Reumatology 1 question. <p>Each answer to the question is scored with a maximum of 5 points. The maximum number of points that the student can obtain at Final exam is 50 points. The student must gain on Final exam at least 28 points to be considered passed the exam.</p> <p>The number of points won through all forms of knowledge testing is translated into the final grade.</p> <p>Partial exam from Pulmology: min. 5,5 points max. 10 points</p>
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Practical exam 1.	min. 2,5 points	max. 5 points
Practical exam 2.	min. 8 points	max. 15 points
Practical exam 3.	min. 11 points	max. 20 points
Final oral examination	min. 28 points	max. 50 points.
		min. 55 points max. 100 points
Repeated exam and Remedial exam		
Repeated and Remedial exam are conducted according to the previously defined criteria of the Final examination. To access the repeated exam or corrective exam, the student must have successfully completed Practical exam 1, Practical exam 2 and Practical exam 3. If the student has not passed the Partial exam from Pulmology, that part of the exam takes access to an oral final exam.		
Forming a final grade		
The total number of points won on all forms of knowledge testing is translated into the final grade as follows:		
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

6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none"> – Kasper D, Fauci A, Hauser S, Longo D, Jameson J, Loscalzo J. Harrison's Principles of Internal Medicine, 19th edition. The McGraw-Hill; 2015. – Klippel JH, Dieppe PA. Rheumatology, 6th edition. Mosby International; 2014. – Bonow R (ed). Braunswald's Heart Disease: A Textbook of Cardiovascular Medicine. Philadelphia: Saunders; 2011. – Rajagopalan S, Dean SM, Mohler ER, Mukhetjee (eds). Manual of Vascular Disease. Philadelphia: Lippincott Williams & Wilkins; 2012. – Avunduk C. Manual of Gastroenterology: Diagnosis and Therapy. Philadelphia: Lippincott Williams & Wilkins; 2008. <p>Additional ((for students with knowledge of Bosnian language):</p> <ul style="list-style-type: none"> – Mehić B. (ed). Pulmologija. Sarajevo: Respiratorno udruženje u Bosni i Hercegovini; 2016. – Sofić A, Husić-Selimović A. Dijagnostika i liječenje bolesti debelog crijeva. Sarajevo: Dobra knjiga; 2017. – Kes P. (ed). Akutno oštećenje bubrega. Zagreb: Medicinska naklada; 2018. – Rašić S, Unčanin S. Peritonealna dijaliza. Sarajevo: Medicinski fakultet UNSA; 2011. – Resić H, Mešić E, Kukavica N, Alečković M. Klinički aspekti hemodijalize. Sarajevo: University press; 2014. – Dilić M. Klinička angiologija: dijagnostika i terapija oboljenja krvnih sudova. Sarajevo: Medicinski fakultet UNSA; 2011. – Mesihović R. i sar. Gastrointestinalna endoskopija. Sarajevo: SaVart; 2009.
7. Remark	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheaters in CCUS. The exercises will be realized according to the system of teaching blocks at the internal clinics of 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 any working day pre-reserved with the stuff.</p>

COURSE PLAN: INTERNAL MEDICINE

Week	Form of teaching	Number of hours
Week 1.	Lecture: Pulmology	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 2.	Lecture: Pulmology	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 3.	Lecture: Pulmology	3
	Exercises: Exercise by departments to the advertised schedule.	3
	Partial exam 1	3
	Practical exam 1	3
	Lecture: Cardiology	9
	Exercises: Exercise by departments to the advertised schedule.	9
Week 4.	Lecture: Cardiology	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 5.	Lecture: Cardiology	12
	Exercises: Exercise by departments to the advertised schedule.	12
	Lecture: Angiology	3
	Exercises: Exercise by departments to the advertised schedule.	3
Week 6.	Predavanje: Angiology	15
	Predavanje: Vježbe po odjelima prema oglašenom rasporedu.	15
Week 7.	Lecture: Gastroenterology and hepatobilliary diseases	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 8.	Lecture: Gastroenterology and hepatobilliary diseases	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 9.	Lecture: Gastroenterology and hepatobilliary diseases	2
	Practical exam 2	4
	Lecture: Rheumatology	9

	Exercises: Exercise by departments to the advertised schedule.	9
	Lecture: Hematology	3
	Exercises: Exercise by departments to the advertised schedule.	3
Week 10.	Lecture: Hematology	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 11.	Lecture: Nephrology	16
	Exercises: Exercise by departments to the advertised schedule.	14
Week 12.	Lecture: Nephrology	4
	Exercises: Exercise by departments to the advertised schedule.	6
	Lecture: Endocrinology	9
	Exercises: Exercise by departments to the advertised schedule.	9
Week 13.	Lecture: Endocrinology	15
	Exercises: Exercise by departments to the advertised schedule.	12
	Practical exam 3	3
Week 14.	Lecture: Nuclear medicine	15
	Exercises: Exercise by departments to the advertised schedule.	15
Week 15.	Lecture: Elective course	9
	Exercises: Exercise by departments to the advertised schedule.	8
	Partial exam	1
	Practical exam	2
Week 16.	Final exam	
Week 17.-20.	Repeated exam and Remedial exam	

PLAN AND PROGRAM OF TEACHING IN THE SUBJECT *INTERNAL MEDICINE*

PLAN: CARDIOLOGY

1th week	The form of teaching	Number of hours
Monday	<p>Lecture: Examination methods in cardiology. Contemporary diagnostic and curative methods in cardiology.</p> <p>Practical exercises on Clinic: Taking general and specific cardiac anamnesis. Physical examination of the cardiac patient. Clinical presentation of patients with various cardiac clinical imaging (AMI, AP, right, left and globally heart failure, heart rhythm disorders, valvular acquired and congenital heart defects). Techniques of examination of the cardiac patient (skin and visible mucous inspection, examination by systems, especially palpation, percussion and auscultation of precordium, examination of the liver and extremities). Non-invasive and invasive cardiological diagnostic procedures, laboratory analyzes. Selection of specific diagnostic methods in relation to the clinical picture of the patient (laboratory findings, RTG heart and lung, ECG, echocardiography, 24h Holter, test load, nuclear cardiology, catheterization of the heart, radiological examination in cardiology).</p>	<p>3</p> <p>3</p>
Tuesday	<p>Lecture: Heart failure.</p> <p>Practical exercises on Clinic: Specificity of the anamnesis and clinical examination of the cardiac patient in heart failure. Clinical manifestations of right-sided, left ventricular and global heart failure, ECG, Echocardiographic and radiological methods of heart failure diagnostics. Taking and analyzing specific laboratory findings for heart failure. Differential diagnosis and treatment of individual forms of heart failure. Showing patients with heart failure with specific medical history and physical examination. Clinical manifestations of the disease, diagnosis and treatment.</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: Heart defects. Myocardial diseases.</p> <p>Practical exercises on Clinic: The history and the specificity of physical examination of patients with congenital and acquired heart defects. Heart tone and noise in specific valvular changes. X-ray and ECG changes. Specificity of other cardiological and radiological modalities in the diagnosis and therapy of inborn and acquired valvular heart defects. Therapeutic noninvasive and invasive cardiological - cardiovascular treatments.</p>	<p>3</p> <p>3</p>
Thursday	<p>Lecture: Infectious endocarditis. (Microbial endocarditis, myocarditis and pericarditis. Introduction to etiopathogenesis, diagnosis and treatment of microbial changes in different cardiac structures.)</p> <p>Practical exercises on Clinic: Taking anamnesis and specific physical examination of patients with microbial endocarditis, myocarditis and pericarditis. The importance of complications in certain manifestations of microbial cardiac changes. Heart tones and noises in these states. RTG and ECG changes. Specificity of other cardiological and radiological modalities in the diagnosis</p>	<p>3</p> <p>3</p>

	and therapy of microbial endocarditis, myocarditis and pericarditis. Heart tamponade. Therapeutic noninvasive and invasive cardiological - cardiovascular treatments.	
Friday	<p>Lecture: Rheumatic fever.</p> <p>Practical exercises on Clinic: Access and specific problems related to a rheumatic fever patient. Methods of recognition, rapid detection, and definitive diagnosis of patients with rheumatic fever. Diagnostic modalities. Laboratory searches. Specificity of radiological and echocardiographic methods for the detection of complications and rheumatic sequelae. Selection of specific diagnostic methods in relation to the clinical picture of the patient (laboratory findings, heart and lung X-ray, echocardiography, 24hours Holter, load test, nuclear cardiology, catheterization of the heart).</p>	<p>3</p> <p>3</p>
2nd week	The form of teaching	Number of hours
Monday	<p>Lecture: Arterial hypertension.</p> <p>Practical exercises on Clinic: Access and special features of anamnestic and physical treatment of patients with arterial hypertension. Methods of measuring blood pressure. Features of correct blood pressure measurement. Diagnostic and laboratory methods in the detection of the degree of hypertension and its complications. Treatments of arterial hypertension, hypertensive crisis and hypertensive encephalopathy.</p>	<p>3</p> <p>3</p>
Tuesday	<p>Lecture: Ischemic heart disease. Acute coronary syndrome.</p> <p>Practical exercises on Clinic: Access and specific problems in patients with ACS. The importance of time in the treatment of ACS patients. Methods of recognition, rapid detection, transport and efficient and timely ACS therapy. The specificity of the anamnesis, clinical examination and diagnostic tools in ACS patients. Understanding the principles and methods of invasive treatment of ACS. View patients with ACS with specific medical history and physical examination. Special features of clinical manifestations of the disease, diagnosis and treatment.</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: Heart rhythm disorders. Clinical and ECG presentations, methods of diagnosis and treatment. Electro-stimulation.</p> <p>Practical exercises on Clinic: Presentation and treat patients with various heart rhythm disorders. The importance of timely interruption of rhythm disorders and the relationship between rhythm disorders and patient's life threatening. Dangers in VF, VT, EMD and asystoli. Necessary diagnostic tools for prompt detection of heart rhythm disorders (VF, VT, AV blocks, EMD, Asistolia). The importance of the provisional placement of the artificial heart rhythm and ICD guide. Apply active treatment to these conditions. Cardiopulmonary resuscitation measures.</p>	<p>3</p> <p>3</p>

Thursday	<p>Lecture: Urgent conditions in cardiology. Malignant heart rhythm disorders, cardiac arrest, electromechanical dissociation. Cardiopulmonary resuscitation.</p> <p>Practical exercises on Clinic: Access to an endangered patient. Details in the reanimation procedure, modes of transport and therapeutic procedures during transport of a life-threatening patient. Methods of CPR. Defibrillator, defibrillation and electroconversion. An artificial guide to rhythm. ICD.</p>	<p>3</p> <p>3</p>
Friday	<p>Lecture: Cardiac clinical manifestations during other diseases or conditions (endocrine, metabolic, oncology, systemic, during pregnancy and postpartum).</p> <p>Practical exercises on Clinic: The importance of the anamnesis and specificity of the physical finding of cardiac patients in the course of diseases of other organic systems. The relationship of evaluation procedures of cardiologists and anesthesiologists and surgeons. Getting acquainted with certain conditions that contradict the surgical and anesthetic procedures. Relationship of cardiac, endocrine, oncology, systemic and other diseases. Peri and postpartum cardiomyopathy.</p>	<p>4</p> <p>3</p>
3rd week	The form of teaching	Number of hours
Monday	<p>Lecture: Pericardial diseases.</p> <p>Practical exercises on Clinic: Taking anamnesis and specificity of physical examination of patients with pericarditis. Physical finding. X-ray and ECG changes. Specificity of other cardiological and radiological modalities in the diagnosis and therapy of pericarditis. Therapeutic procedures.</p>	<p>3</p> <p>3</p>
Tuesday	<p>Lecture: Medicines and new procedures in cardiology. Multidisciplinary cardiovascular team. Cardiologist-cardiac surgeon-anesthesiologist. Protocols for the advanced maintenance of life function (BSL, ALS).</p> <p>Practical exercises on Clinic: Getting acquainted with medications and new procedures in cardiology. Protocols for advanced life-functional maintenance (BSL, ALS).</p>	<p>4</p> <p>3</p>

PLAN: ANGIOLOGY

3rd week	The form of teaching	Number of hours
Wednesday	<p>Lecture : Risk factors and etiopathogenesis of atherosclerotic disease.</p> <p>Practical exercises on Angiology department: Taking a history of an angiologic patient, especially in terms of cardiovascular risk factors, the way and techniques of examination of the vascular patient - general aspect, skin inspection and visible mucous membranes, examination by systems, inspection of the neck, upper and lower extremities, abdomen, palpation of the aorta, carotid arteries, upper and lower extremities, artery auscultation in all of these localizations. Functional tests of arterial flow, Alen test, Capillary charge test. Perform non-invasive diagnostic procedures. Analysis and interpretation of the obtained laboratory findings. ECG interpretation, findings of Continuous Doppler and Color Doppler. Determination of the degree of atherosclerotic disease, classification by Fontaine. Algorithm for selecting image diagnostic methods - conventional arteriography by Seldinger, CT arteriography, or MR arteriography. Choice and method of treatment of angiologic patients.</p>	<p>3</p> <p>3</p>
Thursday	<p>Lecture: Atherosclerotic disease of arteries. Polyvascular atherosclerotic disease.</p> <p>Practical exercises on Clinic: Treatment of patients with polyvascular disease, taking anamnesis and physical examination. Laboratory searches. Analysis of platelets, lipidograms, fibrinogen, glycemia, HbA1c, proteinograms, enzymatic status, a caulogram. Clinical characteristics of diseases of certain vascular systems and gradations of diseases, gradation of multisegmental occlusive disease. Possibilities of Color Doppler diagnostics, and angiographic search. Principles of medication, vasodilators, antiagregants. Principles and indications for intervention treatment. Performing diagnostics.</p>	<p>3</p> <p>3</p>
Friday	<p>Lecture: Atherosclerotic disease of the large blood vessels of the neck and upper extremities.</p> <p>Practical exercises on Clinic: Taking a history and physical examination of patients with diseases of the carotid system and system of upper extremities. Laboratory searches. Clinical characteristics of diseases of certain vascular systems and disease gradients. Possibilities of Color Doppler Diagnostics, and Angiographic Search. Principles of medication, vasodilators, antiagregants. Principles and Indications for Intervention Treatment. Performing diagnostics.</p>	<p>3</p> <p>3</p>
4th week	The form of teaching	Number of hours
Monday	<p>Lecture: Inflammatory diseases of the microvascular and macrovascular system.</p> <p>Practical exercises on Clinic: Getting to know the symptoms and signs of the disease that involve the microvascular and macrovascular system. Principles of diagnostics (color Doppler diagnostics, arteriography by Seldinger, CT angiography, CEMRA). Getting acquainted with the possibilities of medication and intervention</p>	<p>3</p> <p>3</p>

	treatment. Getting acquainted with the possibilities of medication and intervention treatment.	
Thursday	<p>Lecture: Diabetic microvascular and macrovascular angiopathy. Chronic venous insufficiency.</p> <p>Practical exercises on Clinic: Examination of patients with diabetic angiopathy, differentiation of microvascular from macrovascular diabetic angiopathy, presentation of a patient with ischemic changes in diabetic angiopathy, presentation of toilets, and suppression of ischemic changes. Clinical manifestations of diabetic angiopathy, diagnosis and therapy. Anamnesis and physical examination of the venous system of the upper extremities, v. cavae and lower extremities. Laboratory analysis. Clinical characteristics of diseases of certain venous systems and CEAP gradation of venous diseases. Possibilities of Color Doppler Diagnostics, and CT Venography. Principles of medication treatment, venoprotective and anticoagulant therapy. Principles of Compression Therapy. Principles of hyperbaric therapy and perform therapy.</p>	<p>4</p> <p>3</p>
Wednesday	<p>Lecture: Deep vein thrombosis and venous thromboembolism.</p> <p>Practical exercises on Clinic: Taking history and physical examination of patients with deep venous thrombosis of the venous system of the upper extremities, v. cavae and the lower extremities. Laboratory analysis. Perform a prediction for deep venous thrombosis, identify the risk of a Wells and Geneva score. Analysis of laboratory findings - coagulograms, D-dimers, trombocytes, fibrinogen, proteins, enzyme status, coagulograms. Clinical characteristics of the disease and introduction to the possibilities of Color Doppler diagnostics. Getting to know the principles of anticoagulant treatment, as well as thrombolytic treatment. Getting to know the possible complications. Prevention of embolism. Principles of post-discharge therapy, monitoring of anticoagulant therapy, compressive therapy. Performing diagnostics and patient analysis.</p>	<p>4</p> <p>3</p>

PLAN: GASTROENTEROLOGY AND HEPATOBILLIARY DISEASES

4th week	The form of teaching	Number of hours
Thursday	Lecture: Symptoms, diagnostic procedures, medications. Practical exercises on Clinic: Getting acquainted with the symptoms and signs of gastrointestinal and hepatic diseases. Exercises at the clinical departments and outpatient department of the Clinic.	3 3
Friday	Lecture: Diseases of the esophagus, stomach and duodenum. Practical exercises on Clinic: Physical examination of patients with diseases of stomach and / or esophagus. Getting acquainted with laboratory findings. Diagnostic procedures in gastroenterohepatology.	3 3
5th week	The form of teaching	Number of hours
Monday	Lecture: Diseases of the small intestine and colon diseases. Practical exercises on Clinic: Anamnesis and physical examination of patients with small intestine and colon diseases. Diagnostic procedures. Treatment of the these diseases.	3 3
Thursday	Lecture: Inflammatory bowel diseases. Practical exercises on Clinic: Getting acquainted with the symptoms and signs of Ulcerative colitis and Crohn's disease. Diagnosis of these diseases. Endoscopic procedures, intestine biopsy. Contemporary therapeutic approach.	3 3
Wednesday	Lecture: Liver diseases and diseases of biliary system. Practical exercises on Clinic: Introduction to the clinical presentation of patients with viral hepatitis; alcoholic diseases; autoimmune hepatitis; primary biliary cirrhosis; primary sclerosing cholangitis; cirrhosis of the liver and its complications; Review of patients with transplanted liver.	3 3
Thursday	Lecture: Liver cirrhosis and its complications. Practical exercises on Clinic: Getting to know the symptoms and physical findings of patients with cirrhosis of the liver and its complications; Review of patients with transplanted liver.	3 3
Friday	Lecture: Pancreatic diseases. Practical exercises on Clinic: Getting to know the symptoms and physical examination of patients with acute and chronic pancreatitis. Making a diagnostic plan. Diagnostic procedures in patients with pancreatitis. Planning the therapeutic and dietary regimens.	3 3
6th week	The form of teaching	Number of hours

Monday	Lecture: Pre-cancerous, tumor of the liver. Practical exercises on Clinic: Pre-cancerous in gastroenterology; Barrett's esophagus; Gastrointestinal system polyp; Display of colonoscopy, analysis of findings; ultrasound of the liver and abdomen. Team work in medicine: gastroenterologist - abdominal surgeon - anaesthesiologist.	3 3
Thursday	Lecture: Emergency conditions in gastroenterology. Practical exercises on Clinic: Presentation of patients with acute condition in gastroenterohepatology (acute abdominal pain, gastrointestinal bleeding, acute diarrheal syndrome, ...). Parenteral nutrition; Enteral nutrition. Setting nasogastric tube.	3 3
Wednesday	Lecture: Interventional gastroenterology. Practical exercises on Clinic: Getting acquainted with the procedures of interventional gastroenterology. Exercises in the interventional department of outpatient clinic diagnostics.	3 3
Thursday	Lecture: Nutrition in gastroenterology. Practical exam 1	2 4 (K+A+G)

PLAN: PULMOLOGY

6th week	The form of teaching	Number of hours
Friday	Lecture: Physiology of lungs in the function of clinical events Interpretation of conventional chest X-ray, type of shadows on the lungs Practical exercises on Clinic: Interpretation of conventional chest X-ray; Spirometry (lung volumes and capacities); Plethysmography (airway resistance, residual volume)	3 3
7th week	The form of teaching	Number of hours
Monday	Lecture: Asthma Practical exercises on Clinic: Successful recognition of respiratory symptoms in patients with asthma. Detection of signs of lung diseases by physical examination of the chest organ: inspection, palpation, tactile fremitus, percussion of the chest with the aim determination of boundaries of the lungs and condensations of lung parenchima, and finally auscultation of the lungs. Bronchodilating and bronchoconstricting test, Skin prick tests. Inhalation therapy (MDI spray, inhalers).	3 3

Thursday	<p>Lecture: Chronic obstructive pulmonary disease (COPD) Acute exacerbation of COPD</p> <p>Practical exercises on Clinic: Successful recognition of respiratory symptoms in patients with COPD. Detection of signs of lung diseases by physical examination of the chest organ: inspection, palpation, tactile fremitus, percussion of the chest with the aim determination of boundaries of the lungs and condensations of lung parenchima, and finally auscultation of the lungs. Performing spirometry and interpretation of spirometry findings, Inhalation therapy (MDI spray, inhalers).</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: Tumors of lungs and pleura</p> <p>Practical exercises on Clinic: Interpretation of conventional chest X-ray. Successful recognition of respiratory symptoms in patients with lung tumors of lungs and pleura. Giving of sputum on cytological examination. Sputum induction for cytological examination. Bronchoscopy and bronchoscopic biopsies (fluids and tissues). Transthoracic biopsies. Performing chemotherapy of malignant lung tumors.</p>	<p>3</p> <p>3</p>
Thursday	<p>Lecture: Non-specific infections of the lower respiratory tract Bronchiectasis</p> <p>Practical exercises on Clinic: Successful recognition of respiratory symptoms in patients with non-specific infections of the lower respiratory tract. Detection of signs of non-specific infections of the lower respiratory tract by physical examination of the chest organ: inspection, palpation, tactile fremitus, percussion of the chest with the aim determination of condensations of lung parenchima, and finally auscultation of the lungs. Application of a parenteral treatment (s.c., i.m., i.v. injection - bolus and infusion).</p>	<p>3</p> <p>3</p>
Friday	<p>Lecture: Tuberculosis</p> <p>Practical exercises on Clinic: Interpretation of conventional chest X-ray. Successful recognition of respiratory symptoms in patients with lung tuberculosis. Giving of sputum on BK, Sputum induction (bacteriological, mycological and cytological examination). Microbiological diagnostic of tuberculosis (microscopy, culture, MIGIT).</p>	<p>3</p> <p>3</p>
8th week	The form of teaching	Number of hours
Monday	<p>Lecture: Cystic fibrosis (mucoviscidosis) Pleural inflammation (pleurisy), pneumothorax</p> <p>Practical exercises on Clinic: Recognition of respiratory symptoms in patients with pleural diseases. Detection of signs of lung diseases by physical examination of the chest organ: inspection, palpation, tactile fremitus, percussion of the chest with the aim determination of boundaries of the lungs and condensations of lung parenchima, and finally auscultation of the lungs. Pleural puncture (thoracocentesis). Types of pleura biopsy. Pleurodesis.</p>	<p>3</p> <p>3</p>

Thursday	<p>Lecture: Pulmonary arterial hypertension and chronic pulmonary heart disease Deep Venous Thrombosis and Pulmonary Thromboembolic Disease (PTE)</p> <p>Practical exercises on Clinic: Successful recognition of respiratory symptoms in patients with PAH and PTE. Detection of signs of lung diseases by physical examination of the chest organ: inspection, palpation, tactile fremitus, percussion of the chest and auscultation of the lungs. Application of a parenteral treatment (s.c., i.m., i.v. injection - bolus and infusion).</p>	3 3
Wednesday	<p>Lecture: Acute Respiratory Distress Adult Syndrome (ARDS) Acute and chronic respiratory insufficiency, oxygen therapy, mechanical ventilation of the lungs Central sleep apnoea (CSA)</p> <p>Practical exercises on Clinic: Successful recognition of respiratory symptoms in patients with acute and chronic respiratory insufficiency, ARDS and CSA. Gas analysis of arterial blood. Performing oxygen therapy (mask, nasal catheter). Non-invasive ventilation of respiratory insufficient patients. Invasive ventilation of respiratory insufficient patients .</p>	3 3
Thursday	<p>Lecture: Sarcoidosis Interstitial lung diseases (ILD), diffuse illnesses of lung parenchima</p> <p>Practical exercises on Clinic: Successful recognition of symptoms in patients with sarcoidosis and other interstitial lung diseases. Transthoracic biopsies. Measurement of transfer factor of lung parenchima. Taking of bronchoalveolar lavage and analysis of bronchoalveolar lavage fluid. Treatment of patients with Interstitial lung diseases.</p>	3 3
Friday	<p>Lecture: Lung disease caused by dust, toxic gases and vapors</p> <p>Practical exercises on Clinic: Successful recognition of respiratory symptoms in patients with lung diseases caused by dust, toxic gases and vapors. Detection of signs of lung diseases by physical examination of the chest organ: inspection, palpation, tactile fremitus, percussion of the chest with the aim determination of boundaries of the lungs and condensations of lung parenchima, and finally auscultation of the lungs. Palliative care of pulmonary patients in terminal stage of the disease.</p>	3 3
9th week	The form of teaching	Number of hours
Monday	Practical exam 2	3
	Partial exam 1	3

PLAN: NEPHROLOGY

9th week	The form of teaching	Number of hours
Tuesday	Lecture: Diagnostic and therapeutic procedures in nephrology	2
	Lecture: Disorders of metabolism of body water, electrolytes and acid-base status.	2
	Lecture: Urinary system infections and nephrolithiasis.	2
Wednesday	Practical exercises on Clinic: Analysis of laboratory findings and comparisons with clinical findings in patients with different mineral disorders and acid-base status. Introduction to parameters of metabolic acidosis and alkalosis, and respiratory acidosis and alkalosis. Anamnesis and physical findings of patients with hypervolemia and dehydration - clinical consequences. Different hypovolaemic, euvoemic and hypervolemic hyponatremia.	3
	Taking a specific history and physical examination of patients with urinary infections. Laboratory analyzes. Analysis of urine tape and interpretation of the obtained findings. Interpretation of urin culture findings. Presentation of patients with nephrolithiasis. Selection of diagnostic methods (laboratory findings, echosonography and urinary urinary tract, radiographs, i.v. urography) and treatment of patients with nephrolithiasis. Measurement of blood pressure and body weight. Diuretic measurement. Replacement of urinary bag. Replacement of the urinary catheter.	3
Thursday	Lecture: Tubulointerstitial nephropathy and urinary tract disorders.	2
	Practical exercises on Clinic: Examination of patients with tubulointerstitial kidney disease. Specificity of the anamnesis and physical examination. Clinical manifestations of the disease, diagnosis and treatment.	4
Friday	Lecture: Glomerular clinical-pathological syndromes.	2
	Lecture: Secondary glomerular diseases.	2
	Practical exercises on Clinic: Taking anamnesis and physical examination of patients with glomerular kidney disease. Laboratory analyzes. Analysis of urine and parameters of the functional status of the kidney. Clinical features of individual glomerular disorders and treatment. Getting to know the difference between clinical and laboratory findings of nephrotic and nonfritic syndrome. Immunological tests. Presentation of kidney biopsy.	2
10th week	The form of teaching	Number of hours
Monday	Lecture: Diabetic nephropathy.	2
	Lecture: Vascular diseases of the kidney.	2
	Practical exercises on Clinic:	2

	<p>Presentation of patients with vascular renal impairment. Medical history and physical examination, diagnostic procedures, differential diagnosis, therapeutic plan.</p> <p>History and physical examination of patients with diabetic nephropathy. Observation of clinical characteristics of diabetic nephropathy. The tests for early diagnosis of diabetic nephropathy. Assessing the degree of renal impairment on the basis of clinical and laboratory findings. Creating a plan of treatment of diabetic patients with diabetic nephropathy.</p>	
Tuesday	<p>Lecture: Acute kidney injury (AKI).</p> <p>Practical exercises on Clinic: Review of patients with acute renal injury, laboratory analysis, diagnostic procedures. Diuretic monitoring. The importance of measuring body weight and blood pressure. Principles of treatment of patients with acute renal failure. Application of active treatment.</p>	<p>2</p> <p>3</p>
Wednesday	<p>Lecture: Chronic kidney disease / Chronic renal insufficiency.</p> <p>Practical exercises on Clinic: History taking and specificity of the physical finding of patients in chronic renal insufficiency. Treatment of chronic kidney disease. Treatment of terminal renal insufficiency by hemodialysis and peritoneal dialysis. Peritoneal dialysis. Inclusion of patients on hemodialysis treatment and presentation of hemodialysis treatment. Screening of ESRD patients for transplantation, examination of the transplanted kidney patient, the way of its examination and monitoring.</p>	<p>2</p> <p>3</p>

PLAN: ENDOCRINOLOGY

10th week	The form of teaching	Number of hours
Thursday	<p>Lecture: Clinical aspects of neuroendocrine regulation. Pituitary and hypothalamic diseases.</p> <p>Practical exercises on Clinic: Basic skills for taking anamnesis in endocrine patients. The basic skills of the physical examination of the endocrinological patient. Basic diagnostic procedures in endocrinology patients. Diagnostic methods in endocrinology / stimulative and supersessional tests.</p>	<p>3</p> <p>3</p>
Friday	<p>Lecture: Diseases of the thyroid gland.</p> <p>Practical exercises on Clinic: Discussion of differential diagnosis of endocrinological diseases. Basic therapeutic procedures in endocrinology patients. Diagnosis and treatment of thyroid disease. Showing patients with hyperthyroidism. Display of patients with hypothyroidism.</p>	<p>3</p> <p>3</p>

11th week	The form of teaching	Number of hours
Monday	<p>Lecture: Parathyroid gland diseases. Metabolic bone diseases.</p> <p>Practical exercises on Clinic: Specificity of work in polyclinics and diagnostic outpatient infirmary, day hospital, endocrinology department and intensive care - metabolic unit. Interpretation of laboratory tests in the evaluation of the endocrine system function.</p>	3 3
Tuesday	<p>Lecture: Diseases of the adrenal glands.</p> <p>Practical exercises on Clinic: Diagnosis and treatment of adrenal gland diseases. Presentation of patients with Cushing's syndrome.</p>	3 3
Wednesday	<p>Lecture: Emergency conditions in endocrinology.</p> <p>Practical exercises on Clinic: Discussion on differential diagnosis and clinical-laboratory signs of emergency conditions in endocrinology (diabetic ketoacidosis, diabetic ketoacidotic coma, hypoglycaemia and hypoglycemic coma, lactic acid coma, hyperosmolar coma, hypothyroid crisis, thyrotoxic crisis, Addison crisis), as well principles of urgent treatment of such patients.</p>	3 3
Thursday	<p>Lecture: Diseases of the sexual glands. Diseases caused by the secretion of hormones from the tissues that are not classical endocrine glands.</p> <p>Practical exercises on Clinic: Determination of FG scores of hirsutism. Body weight and height, growth estimation. Setting of hairy, skin pigmentation. Potential problems, menstrual cycle or sterility.</p>	3 3
Friday	<p>Lecture: Diabetes mellitus. Acute and chronic complications of diabetes.</p> <p>Practical exercises on Clinic: Basic skills of taking anamnesis in patients with diabetes. Basic physical examination skills in patients with diabetes. Basic diagnostic procedures in patients with diabetes. Diagnostic methods in diabetology. Discussion of differential diagnosis. Glycemic determination with glucometer, insulin application. Showing patients with type 1 diabetes mellitus and therapeutic dilemma. Illustration of patients with type 2 diabetes mellitus and discussion of diagnostic methods and differential diagnosis of co-morbid diseases. Education of the patient and his family regarding nutrition, treatment methods, prevention of complications in diabetes.</p>	3 3
12th week	The form of teaching	Number of hours
Monday 2018.	<p>Lecture: Paraneoplastic endocrine syndromes. Metabolic diseases (obesity, malnutrition, hyperlipoproteinemia).</p> <p>Practical exercises on Clinic: Determination of BMI in patients, determining the percentage of body fat, volume of waist and hips. Treatment of diabetes and obesity. Oral therapy of diabetes.</p>	3 3

PLAN: HEMATOLOGY

12th week	The form of teaching	Number of hours
Tuesday	Lecture: Specificity of hematopoietic system, hematologic patients and haematological diagnostics.	3
	Practical exercises on Clinic: Repeat basic physical examination skills with an emphasis on the symptoms and signs of hematologic patients. Students are observing aspiration puncture of the bone marrow and bone biopsy.	3
Wednesday	Lecture: Diseases of the hematopoietic stem cell.	3
	Practical exercises on Clinic: Repeat physical examination in patients with aplastic anemia, myelodysplasia, myeloproliferative neoplasm and acute myeloid leukemia. Analysis of peripheral blood, bone marrow and lymph node. Cytomorphology, cytochemistry, immunophenotyping, immunohistochemistry and cytogenetics.	3
Thursday	Lecture: Diseases of erythropoiesis and syndromes.	3
	Practical exercises on Clinic: Repeat physical examination in patients with anemia syndrome. Analysis of peripheral blood and bone marrow. Basic laboratory findings in the differential diagnosis of anemia syndrome. (Er, Hgb, MCV, MCH, MCHC, Fe / UIBC, TIBC, ferritin, bilirubin, COOMBS, B12, folate, LDH-P, biopsy of the gastric mucosa, bone marrow cytomorphological examination). Reading and understanding of peripheral blood image findings.	3
Friday	Lecture: Lymphoproliferative diseases.	3
	Practical exercises on Clinic: Repeat physical examination and diagnostics of acute lymphoblastic leukemia and lymphoma. Familiar with the WHO classification and therapeutic algorithms for the treatment of lymphoproliferative neoplasms. Differential diagnostics of the enlarged lymph node.	3
13th week	The form of teaching	Number of hours
Monday	Lecture: Platelet diseases and coagulation diseases.	3
	Practical exercises on Clinic: Repeat physical examination of patients with hemorrhagic syndrome. Hemophilia, diagnosis and treatment. Differential diagnosis of hemorrhagic syndrome.	3
Tuesday	Lecture: Transfusion medicine. Transplantation of haematopoietic stem cells.	3
	Practical exercises on Clinic: Determination of blood groups. Adlication of concentrated platelets, partially recombinant erythrocytes, concentrated filtered erythrocytes, full fresh blood, fresh frozen plasma. Getting to know the work of the wholeseparator. Differential diagnosis of hemorrhagic syndrome.	3

PLAN: RHEUMATOLOGY

13th week	The form of teaching	Number of hours
Wednesday	Lecture: Autoimmune systemic inflammatory rheumatic disease. Practical exercises on Clinic: Anamnesis and physical examination of the joints. Disease Activity Scale (DAS). Functional Capacity Assessment (HAQ) and Analog Visual Scale (VAS). Interpretation of X-ray joint findings. Anamnesis and physical examination of blood vessels. Interpretation of laboratory findings of blood and urine in vasculitis. Diagnosis of vasculitis.	3 3
Thursday	Lecture: Autoimmune systemic inflammatory rheumatic disease. Degenerative rheumatic diseases. Practical exercises on Clinic: Exercise for taking anamnesis, performing a physical examination, making a diagnostic plan and planning a therapeutic measure in patients with systemic connective tissue diseases (Systemic Lupus Erythematosus, Antiphospholipid Syndrome, Dermatomyositis, Polymyositis, Scleroderma).	3 3
Friday	Lecture: Metabolic bone diseases and infectious arthritis. Seronegative spondylopathies. Rheumatic diseases of the connective and soft tissues. Practical exercises on Clinic: Exercise taking anamnesis, performing a physical examination, making a diagnostic plan and planning therapeutic measures in patients with metabolic bone diseases, infectious arthritis and rheumatic diseases. Practical exam 3	2 1 3
Week 16.	Final exam	
Week 17.-20.	Repeated exam and Remedial exam	

Code: MFSE 0702	Course title: NUCLEAR MEDICINE		
Level: clinical	Study year: IV	Semester: VII	ECTS: 2
Status: obligatory	Total contact hours: 30		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate professor Amela Begić, MD PhD; Assistant Professor Nermina Bešlić, MD PhD; Assistant Sejla Cerić, MSc MD; Assistant Amila Bašić, MD			
1. Overall aim	The overall aim of the Nuclear Medicine Course is to increase understanding of basic principles of nuclear medicine application in diagnostics and therapeutics in clinical practice.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Basic principles of Nuclear Medicine The goal of this module is to introduce students about types and ways of ionizing radiation detection, types of gamma cameras, application and preparation of radiopharmaceuticals.</p> <p>Module 2. Nuclear medicine in endocrine diseases The goal of this module is to introduce students with diagnostic alorithm in a patients with endocrine disorders.</p> <p>Module 3. Nuclear medicine in cardiovascular and lung diseases The goal of this module is to introduce students with diagnostic alorithm in patients with cardiovascular and lung diseases.</p> <p>Module 4. Nuclear medicine in skeletal system The goal of this module is to introduce students about bone scintigraphy.</p> <p>Module 5. Nuclear medicine in nephrology and urology The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in nephrology and urology.</p> <p>Module 6. Nuclear medicine in gastrointestinal and central nervous system The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in neurology, psychiatry and in gastroenterohepatology.</p> <p>Module 7. Nuclear medicine in oncology, PET/CT The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in oncology.</p> <p>Module 8. Basic aspects of pediatric nuclear medicine and radionuclide therapy The goal of this module is to introduce students with diagnostic alogorithm in pediatric patients and radionuclide therapy.</p>		

<p>3. Learning outcomes (Knowledge, skills and competences)</p>	<p><i>Through the lectures and practical work the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Know the principles of gamma cameras, radiopharmaceuticals, SPECT and PET/CT. 2. Understand diagnostic procedures in thyroid diseases and skeletal scintigraphy. 3. Know indications and protocols in heart and lung diseases diagnostic procedures. 4. Know indications for static and dynamic scintigraphy. 5. Develop a basic understanding of scintigraphy of hepatobiliary and diagnostic. 6. Discover nuclear medicine imaging in neurology, psychiatry, oncology, SNL and PET/CT procedure. 7. Understand and learn the treatment with I¹³¹ for thyroid differentiated carcinoma, treatment with MIBG in pediatric oncology, palliative radionuclide therapy of bone metastatic disease. <p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"> - Instruction of patients about preparation for nuclear medicine procedures - Calculation of single doses for administration - Distinguishing different types of collimators, pinhole collimator - Analysis and inteipretation of different examination (thyroid, bone, kidneys: dynamic and static renal scintigraphy, hepatobiliary scintigraphy, Meckel's diverticulitis, SLN, scintigraphy of somatostatin receptors) - Interpretation of SPECT, PET/CT acquisition - Identification of indications for PET/CT - Demonstration of specific parts of PET/CT, fusion of images
<p>4. Teaching methods</p>	<p>Lectures: 15 hours Practical work: 15 hours</p>
<p>5. Method of knowledge assessment and examination</p>	<p>Exam is caried out in two parts:</p> <ol style="list-style-type: none"> 1. practial exam and 2. partial exam in the form of Multiple choice questions (MCQ) tests <p>Practical exam Acquired skills assessment will be carried out through Practical exam. 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 exam. The final grade will be established by adding other points.</p> <p>Partial exam Parcial exam consits of MCQ test with a total of 40 questions, each correct answer brings 2 points, a total 80 points. A minimum of 44 points shall be deemed to be passed the student's examination. The final Grade exam is calculated of the number of points MCQ test plus number of points of practical exam.</p> <p>Final exam If student failed to pass the written test, the examinations material is deposited on the Final exam, which contains a total of 40 MCQ questions, each correct answer</p>

	<p>brings 2 points, a total 80 points. The minimum number of points to pass the exam is 44 points.</p> <p>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 exam and Remedial exam</p> <p>Repeated and Remedial exam take place according to previously defined criteria of the final examination.</p> <p>The total number of points won on all forms of knowledge 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>Recommended:</p> <ul style="list-style-type: none">– Ziessman H, O'Malley J, Thrall J. Nuclear Medicine: The Requisites, 4th Edition. Elsevier; 2013. <p>Additional:</p> <ul style="list-style-type: none">– Ell PJ, Gtambhir SS. Nuclear Medicine in Clinical Diagnosis and Treatment. Churchill-Livingstone; 2004.– Mihailovic J, Goldsmith SJ, Killeen RP. FDG PET/CT in Clinical Oncology. Springer Verlag; 2012.																					
7. Remark	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheater of the Medical Faculty in CCUS. The exercises will be realized at the Clinic for endocrinology and Nuclear Medicine in 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.</p> <p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is any working day pre-reserved with the stuff.</p>																					

PLAN OF SUBJECT: NUCLEAR MEDICINE

Week 14.	The form of teaching	Number of hours
Monday	Lecture: Basic principles of nuclear medicine. Nuclear medicine in endocrine diseases.	3
	Exercises: Instruction of patients about preparation for nuclear medicine procedures, Distinguishing different types of collimators, pinhole collimator, basic principles of diagnostics and therapeutic approach of endocrine diseases.	3
Tuesday	Lecture: Nuclear medicine in cardiovascular and lung diseases. Nuclear medicine in skeletal system. Radionuclide therapy.	4
	Exercises: Analysis and interpretation of different nuclear-medical examination. Interpretation of SPECT.	3
Wednesday	Lecture: Nuclear medicine in nephrology, urology and gastrointestinal system. Radionuclide therapy.	3
	Exercises: Analysis and interpretation of different nuclear-medical examination.	3
Thursday	Lecture: Basic aspect of pediatric nuclear medicine. Nuclear medicine in oncology, PET/CT.	3
	Exercises: PET/CT acquisition. Identification of indications for PET/CT. Demonstration of specific parts of PET/CT, fusion of images.	3
Friday	Lecture: Partial exam	2
	Exercises: Interpretation of different SPECT/CT examination	1
	Exercises: Practical exam	2
Week 16.	Final exam	
Week 17.-20.	Repeated exam and Remedial exam	

Code: MFSE 0704	Course title: IMMUNE AND NEPHROLOGICAL ASPECTS OF KIDNEY TRANSPLANTATION		
Level: clinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Senija Rašić, MD PhD; Assistant professor Damir Rebić, MD PhD			
1. Overall aim	The aim of Immune and Nephrological Aspects of Kidney Transplantation Course is to gain knowledge about basic nephrology and immunological aspects of kidney transplantation as a method of choice in treatment of end stage renal disease, as well as with possible complications and limitations of this kind of renal replacement therapy.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. Transplantation immunobiology and immune mechanisms of kidney allograft rejection The goal of the Module is to introduce the student with the structure and function of the HLA antigen, the identification of HLA antigen and anti-HLA antibodies, the effect of HLA matching in kidney transplantation, and the clinical implications of the crossmatching test. Through this module, the student will be acquainted with the effector mechanisms of graft degradation and rejection of the transplanted organ.</p> <p>Module 2. Medical aspects of kidney donation, renal transplant candidates The aim of this Module is to introduce the student with the method of evaluating the living donor and its preparation for the donation of the kidney, as well as with the method of determining brain death and treatment and the selection of a cadaveric kidney donor. Through this module, the student will also get acquainted with the selection and method of evaluating the recipient of the kidney.</p> <p>Module 3. Immunosuppression in transplantation The aim of this Module is to introduce a student with general principles of immunosuppression in transplantation, a type of immunosuppressive drug and a mechanism of their action.</p> <p>Module 4. Early posttransplantation complications The aim of this Module is to introduce a student with complications that can occur early in the postoperative period (first three months).</p> <p>Module 5. Long-term posttransplant management and complications The aim of this Module is to introduce a student with late complications and illnesses that can occur in a later post-transplant period.</p> <p>Module 6. Infections in kidney transplantation The aim of this Module is to introduce a student with infectious conditions that can occur in patients with a transplanted kidney, the way they are detected and treated.</p>		
3. Learning outcomes (Knowledge, skills and competences)	After completed course the student will acquire basic knowledge about structure and function of major histocompatibility complex (MHC) molecules, impact of human leukocyte antigen (HLA) matching in renal transplantation, effector immune mechanisms of graft destruction, selection and preparation candidates for kidney donation and renal transplant recipients, implementation of immunosuppressive drugs, and also knowledge about possible complications of kidney transplantation and their treatment.		

	<p><i>Through lectures students will acquire following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Know the basic procedures for evaluation and preparation of renal transplant candidates. 2. Know the basic procedures for evaluation and preparation of the donor kidney transplantation. 3. Know the foundations action of immunosuppressive drugs. 4. Know that the early and late posttransplantation complications may affect graft survival. 5. Adopt the attitude that organ donation is the fundamental value of human existence and solidarity in order to save human life and to raise quality of life. <p><i>Through the practical exercises, students will acquire following skills:</i></p> <ul style="list-style-type: none"> - History taking and physical examination of kidney transplant patient - Estimate of the total daily volume of fluid balance - Analyze changes in the amount of urine output - Interpretation of lab test of urine and renal function in transplant patients - Identification of the adverse effects of immunosuppressive drugs - Recognition of clinical signs of infection in transplant patients
4. Teaching methods	<p>Lectures: 10 hours</p> <p>Practical exercises: 10 hours</p>
5. Method of knowledge assessment and examination	<ul style="list-style-type: none"> - Written tests in the form of Multiple choice questions (MCQ) tests. - Practical examination <p>Student's knowledge test will be carried out continuously during classes through the Partial Examination and Practical Exam.</p> <p>Partial exam Partial exam consists of a written test with 30 MCQ, and includes the verification of acquired knowledge. Each correct answer to MCQ question carries 2 points, a total of 60 points. To be considered passed Partial exam, student will need to earn at least 33 points. Earned points are added to other points in the final grade. Students who failed the Partial exam, the examinations taken the material on the the Final exam.</p> <p>Practical exam The practical exam involves assessing the acquired skills, processed through all modules. Evaluation of acquired skills is performed through the fulfillment of the tasks previously defined in the checklist after attended courses. Each task carries an appropriate number of points. The maximum number of points that a student can win is 40. In order to pass the Practical Exam, the student must score at least 22 points. Number of points is added in forming the final grade.</p> <p>Final exam If student failed to pass the partial exam, the examinations material is deposited on the Final exam. Final exam has 30 MCQ, through which a student can earn 60 points. The minimum number of points to pass the exam is 33 points.</p>

	<p>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. The minimum number of points for passing grade is 55.</p> <p>Repeated exam and Remedial exam Repeated and Remedial exam are organized according to previously defined criteria of the final examination.</p> <p>The total number of points won on all forms of knowledge 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>Recommended:</p> <ul style="list-style-type: none">– Danovitch GM. Handbook of Kidney Transplantation (4th ed.). Lippincott Philadelphia: Williams & Wilkins; 2005.– Kahan BD, Ponticelli C. Principles and Practice of Renal Transplantation. London: Martin Dunitz Ltd; 2001. <p>Additional:</p> <ul style="list-style-type: none">– Bašić-Jukić N, Kaštelan Ž. (ur). Transplantacija bubrega. Zagreb: Medicinska naklada; 2016.– Rašić S. Transplantaciona imunologija i odbacivanje transplantata. U: Konjhodžić F. i saradnici. Hirurgija. Sarajevo: NIR KCUS; 2001, str. 272-279.																					
7. Remark	<p>Exercises take place at the Clinic for Nephrology Clinical Center University of Sarajevo. The number of students per group is between 6 and 8 (optimal 7). Exercises can only be accessed by students who have a valid sanitary booklet and proper uniform.</p> <p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is any working day from 14-15hours.</p> <p>E-mail of responsible teacher: senija.rasic@mf.unsa.ba</p>																					

**PLAN AND PROGRAM FOR THE SUBJECT
IMMUNE AND NEPHROLOGICAL ASPECTS OF KIDNEY TRANSPLANTATION**

Week 15.	The form of teaching	Number of hours
Monday	Lecture: Basics of transplantation immunology. The main histocompatibility complex (MHC). Structure and function of HLA antigen, their identification. The influence of HLA matching in kidney transplantation. Anti-HLA antibodies. The clinical significance of the test cross-reactions (crossmatching). Immune mechanisms of rejection of the transplanted kidney (rejection of the allograft).	2
	Exercises: Taking a history and physically examining a transplanted patient. Monitoring of urine output, blood pressure, body weight. Determining the type of immunosuppression.	3
Tuesday	Lecture: Kidney donors in transplantation, selection and preparation. Deceased donor for kidney transplantation (diagnosis of brain death). Choice of a cadaveric kidney donor. Evaluation and preparation of live donors for transplantation. Risks for donation.	2
	Exercises: Taking a blood sample for a laboratory evaluation of renal function and determining the level of calcineurin inhibitors in the blood. Ultrasound examination of the transplanted kidney.	3
Wednesday	Lecture: Immunosuppression in kidney transplantation. Types of immunosuppressant and mechanism of action. Monitor the level of immunosuppressant in the blood. Side effects of immunosuppressive drugs. Early postoperative complications (transplant rejection, delayed graft function, acute tubular necrosis, acute renal failure).	2
	Exercises: Analysis of the protocol for the preparation of the kidney recipient and kidney donor. Discussion with a patient in end stage renal disease about kidney transplantation.	2
Thursday	Lecture: Late complications and diseases in patients with transplanted kidney (recurrent and <i>de novo</i> glomerulonephritis, chronic allograft nephropathy, chronic nephrotoxicity of calcineurin inhibitors, cardiovascular disease ...). Infection in patients with a transplanted kidney.	3
Friday	Lecture: Partial exam	1
	Exercises: Practical exam	2
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0705	Course title: NUCLEAR ENDOCRINOLOGY		
Level: clinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites: According to the Study Regulation			
Lecturers: Professor Amela Begić, MD PhD; Assistant Professor Nermina Bešlić, MD PhD; Sejla Cerić, MSc MD; Assistant Amila Bašić, MD			
1. Overall aims	The overall aim of the Nuclear Endocrinology Course is to emphasize the advances in the instrumentation and radiopharmaceuticals used for thyroid imaging and scintigraphic techniques in imaging different endocrine organs.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. Diagnosis of thyroid gland diseases The goal of this module is to introduce students with diagnostic algorithm in patient with thyroid diseases.</p> <p>Module 2. Therapeutic approaches of benign thyroid diseases The goal of this module is to introduce students with radioiodine tretment of benign thyroid diseases</p> <p>Module 3. Radioiodine therapy in malignant thyroid diseases The goal of this module is to introduce students with radioiodine tretment of malignant thyroid diseases</p> <p>Module 4. Nuclear medicine imaging technique of the parathyroid and adrenal glands The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in parathyroid and adrenal glands diseases</p> <p>Module 5. Nuclear medicine imaging of neuroendocrine tumors The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in NET (diagnostic and therapy).</p> <p>Module 6. PET/CT in Endocrinology The goal of this module is to introduce students with the possibility of using PET/CT in patients with non-iodine avid thyroide cancer.</p>		
3. Learning outcomes (knowledge, skills and competences)	<p>Students will acquire knowledge of symptoms and detection of various diseases of the endocrine systems. Students will be able to choose specific diagnostic procedures for establishing diagnosis. Also, they will improve the knowledge about the importance of multidisciplinary approach for different endocrine diseases.</p> <p>Through the practical work the students will become familiar with protocols of the imaging of Endocrine glands, and be able to distinguish different pathological processes.</p> <p><i>Through the lectures and seminars the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none">1. Learn to distinguish the functional and morphological changes of thyroid gland.2. Understand different therapeutic approaches of benign thyroid gland diseases.3. Develop basic understanding of the treatment with radioactive iodine in		

	<p>malignant thyroid diseases.</p> <p>4. Understand nuclear medicine imaging technique in detection of parathyroid gland diseases.</p> <p>5. Understand nuclear medicine imaging technique of detection and follow-up of neuroendocrine tumors.</p> <p>6. Understand the role of PET/CT in the metastatic thyroid gland diseases.</p> <p><i>Through the practical work students will acquire following skill:</i></p> <ul style="list-style-type: none">- Identification of appropriate usage of radiopharmaceuticals for diagnosis and therapy of endocrine systems diseases.- Perform clinical examination of patients suspected for endocrine diseases.- Interpret laboratory serum testing of endocrine glands.- Fine needle aspiration biopsy of thyroid gland nodules.- Interpretation of parathyroid gland scintigraphy.- Interpretation of neuroendocrine tumors scitigraphy.- PET/CT diagnostic in metastatic diseases of primary malignant tumors of thyroid gland.						
4.Teaching methods	Lecturers: 10 hours Practical work: 10 hours						
5.Methods of knowledge assessment and examination	<p>Students' knowledge check will be carried out continuously during the course.</p> <p>Partial exam</p> <p>Partial exam is in the form of Multiple choice questions (MCQ) tests which consists of the 30 questions. Each correct answer brings 2 points. A minimum of 33 points, a maximum 60 points shall be deemed to be passed the student's examination.</p> <p>Practical exam</p> <p>Evaluation of acquired skills will be carried out on a Practical exam through the fulfillment of the tasks previously defined in the checklist after attended courses. Each task carries an appropriate number of points. The maximum number of points that a student can get is 40. The minimum number of points to pass practical exam is 22 points.</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 answer brings 2 points. The minimum number of points to pass the exam is 33 points, a maximum 60 points. Condition to enter written part of Final exam is to pass practical exam previously.</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 examination.</p> <p>The grade is formed in a way that archived points are counted for each type of knowledge assessment.</p> <table><tr><td><i>Rating</i></td><td><i>Number of points</i></td><td><i>Description Rating</i></td></tr><tr><td>10 (A)</td><td>95-100</td><td>remarkable success without mistakes or with minor errors</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
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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	Recommended: <ul style="list-style-type: none"> – Piciu D. Nuclear endocrinology. Springer Verlag; 2012. – Lewis E. Braverman MD and David Cooper. A fundamental and clinical text https://books.google.ba/books? 		
7. Note	Maximal number of students that can apply to this elective course is 20 while the minimum number is 10. Lectures will be conducted according to the Plan and the Curriculum at the Amphitheater of the Medical Faculty in CCUS. The exercises will be realized at the Clinic for endocrinology and Nuclear Medicine in 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. Consultation period for students is any working day pre-reserved with the stuff.		

PLAN OF THE COURSE: NUCLEAR ENDOCRINOLOGY

[illegible]

Code: MFSE 0707	Course title: PALLIATIVE CARE
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Level: clinical	Year: IV	Semester VII	ECTS: 1
Status: elective	Total hours: 20		
Prerequisites:	According to the Study Regulations		
Lecturers: Professor Semir Bešlija, MD PhD; Assistant Professor Timur Cerić, MD PhD			
1. Overall aim	PC is a multidisciplinary approach to medical and nursing care for people with life-limiting illnesses. First goal of the course is to be focused on providing the education tools about the relief from the symptoms, of pain, physical stress, and mental stress of a terminal diagnosis. The other objective is to give the information to students about how to improve quality of life for both the person and their family. The overall aim of the Palliative Care Course is to educate students with multidisciplinary approach of palliative care (PC) and how to provide optimal palliative treatment (such as pain and nausea etc), basic elements of quality of life improvements and implementation of PC.		
2. Course contents	<p>The following skills will be covered within the Modules:</p> <p>Module 1. Introduction to palliative care (PC) Goal is providing basic concepts of PC in optimal settings and also in countries with low resources as ours.</p> <p>Module 2. Physical, emotional and other issues concerning PC of chronically ill patients Goal is to provide psychosocial aspect of PC as for patients and also as for their families.</p> <p>Module 3. Pain Goal of this module is to educate students about optimal pain treatment management and also optimal introduction of opioids.</p> <p>Module 4. Asthenia, anorexia, cachexia Goal of this module is to educate students optimal treatment management and enteral and parenteral nutrition.</p> <p>Module 5. Nausea and vomiting Goal is to educate students about optimal treatment management of nausea and vomiting.</p> <p>Module 6. Anxiety, delirium, depression Goal is to educate students about optimal treatment management of anxiety, delirium and depression and importance of these symptoms in PC.</p> <p>Module 7. Weakness and fatigue Goal is to educate students optimal treatment of fatigue and weakness.</p> <p>Module 8. Lymphedema, skin changes Goal is to educate on lymphedema and its treatment and importance of skin changes.</p>		
3. Learning outcomes (knowledge, skills and competences)	Students will learn to be effective members of multi-professional and multidisciplinary teams for palliative care and treatment, with the emphasis on treatment of physical problems common to chronically ill patients (pain treatment, treatment of nausea and vomiting, prevention and treatment of cachexia). Through the course students will acquire knowledge of palliative treatment of chronic cancer patients and adequately cooperate with authorities and professionals that provide individual segments of palliative		

	<p>care. Additionally, students will become familiar to the role of other members of team involved in psychological, social and spiritual support of the patients. Assessment of nutritional status of the patient using a special questionnaire.</p> <p><i>Through the lectures the students will gain the following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Discover palliative care as an important aspect of physicians' work. 2. Acquire knowledge about basic conditions and problems of patients with malignant tumors that require palliative treatment. 3. Know effective and proper treatment of the cancer pain. 4. Know how to treat malignant tumors patients with eating disorders. 5. Know how to properly treat vomiting. 6. Understand mental disorders of patients with malignant tumors. 7. Understand the underlying factors of fatigue in patients with malignant tumors. 8. Learn how to recognize and treat skin cancer patients. <p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"> • Determination of pain cause and nature using medical history, physical examination, and available findings • Pain intensity assessment using appropriate scales • Prescription of analgesic therapy, including opioid analgesics, estimation of therapy effectiveness and side effects, therapy adjustment and rotation • Treating side effects of opioid and other analgesics • Effective treatment of nausea and vomiting • Ensuring optimal and rational diet for chronically ill patients • Nurturing and healing skin lesions of chronic patients, including decubitus ulcers
4. Teaching methods	<p>Lectures: 10 hours</p> <p>Practical work: 10 hours</p>
1. Methods of knowledge assessment and examination	<p>Exam is carried out in two parts:</p> <ol style="list-style-type: none"> 1. Practical exam and 2. Partial exam in the form of Extended response questions (ERQ) tests. <p>Practical exam Student will examine the patient and explain all aspect of PC and treatment decisions for patient. Also, skills assessment will be examined. Practical exam will be considered passed if the student wins at least 16.5 points, a maximum 30 points.</p> <p>Partial exam After Practical exam student is doing written tests in form of Extended response questions (ERQ) tests covering all modules and contains a total of 35 MCQ questions, each correct answer brings 2 points. A minimum of 38.5 points, a maximum 70 points shall be deemed to be passed the student's examination.</p>

	<p>Final exam</p> <p>If student failed to pass the written test, the examinations material is deposited on the Final exam, which contains a total of 35 MCQ questions, each correct answer brings 2 points. The minimum number of points to pass the exam is 38.5 points, a maximum 70 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 examination.</p> <p>The total number of points won on all forms of knowledge 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">– Watson M, Lucas C, Hoy A, Wells J. Oxford Handbook of Palliative Care 2/e . Oxford Medical Handbooks 2015.– Kantarjian H, Wolff R. The MD Anderson Manual of Medical Oncology, Third Edition Hardcover – 1 Jul 2016.– Definition of advance care planning; http://www.advancecareplanning.ca/about-advance-care-planning.aspx– Mack JW, Cronin A, Taback N et al. End-of-life care discussions among patients with advanced cancer: a cohort study. Ann Intern Med. 2012; 156: 204–210.																					
7. Remark	<p>Lectures will be conducted according to the Plan and the Curriculum at the Clinic for oncology in 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. Consultation period for students is any working day pre-reserved with the stuff.</p>																					

PLAN OF SUBJECT: PALLIATIVE CARE

Week 15.	Form of teaching	Number of hours
Monday	<p>Lecture: Introduction to palliative care (PC).</p> <p>Exercises: Introduction to palliative care (PC) in clinic setting. Examination of palliative patient with its special considerations.</p>	<p>2</p> <p>2</p>
Tuesday	<p>Lecture: Physical, emotional and other issues concerning PC of chronically ill patients and pain.</p> <p>Exercises: Determination of pain cause and nature using medical history, physical examination, and available findings. Determination of emotional cause using medical history, physical examination, and available findings and its basic treatment .</p>	<p>2</p> <p>2</p>
Wednesday	<p>Lecture: Asthenia, anorexia, cachexia, nausea and vomiting.</p> <p>Exercises: Causes and options of effective treatment of asthenia, anorexia and nausea and vomiting.</p>	<p>2</p> <p>2</p>
Thursday	<p>Lecture: Anxiety, delirium, depression, Weakness and fatigue, Lymphedema, skin changes.</p> <p>Exercises: Causes and options of effective treatment of anxiety , delirium and depression. Ensuring optimizing rationalizing diet for chronically ill patients. Nurturing and healing skin lesions of chronic patients, including decubitus ulcers.</p>	<p>2</p> <p>2</p>
Friday	<p>Lecture: Partial exam</p> <p>Exercises: Practical exam</p>	<p>2</p> <p>2</p>
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0708	Course title: PEDIATRIC NUCLEAR MEDICINE		
Level: clinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Amela Begić, MD PhD; Assistant Professor Nermina Bešlić, MD PhD; Assistant Sejla Cerić, MSc MD; Assistant Amila Bašić, MD			
1. Overall aim	The overall aim of the Pediatric Nuclear Medicine Course is to increase understanding of basic principles and practice of using open sources of ionizing radiation in diagnostic and therapeutic purposes in pediatrics.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. General aspects of pediatric nuclear medicine The goal of this module is to introduce students about types and ways of ionizing radiation detection, types of gamma cameras, application and preparation of radiopharmaceuticals.</p> <p>Module 2. Nuclear medicine diagnostic procedures of the endocrine in children The goal of this module is to introduce students with diagnostic algorithm in a patients with endocrine disorders in childhood.</p> <p>Module 3. Nuclear medicine diagnostic procedures in skeletal and metabolic diseases The goal of this module is to introduce students about indications of bone scintigraphy in children.</p> <p>Module 4. Nuclear medicine diagnostic procedures for renal and urologic diseases in children The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in nephrology and urology.</p> <p>Module 5. Nuclear medicine diagnostic procedures in the gastrointestinal and hepatobiliary diseases in children The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in gastroenterohepatology.</p> <p>Module 6. Nuclear medicine diagnostic procedures in pediatric oncology, PET/CT in children The goal of this module is to introduce students with the possibility of using radiopharmaceuticals in oncology.</p> <p>Module 7. Radionuclide therapy in children The goal of this module is to introduce students with diagnostic algorithm in pediatric patients and radionuclide therapy.</p>		

<p>3. Learning outcomes (Knowledge, skills and competences)</p>	<p><i>Through the lectures and practical work the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Know the principles of gamma cameras, radiopharmaceuticals, SPECT and PET/CT 2. Understand diagnostic procedures in thyroid diseases and skeletal scintigraphy 3. Know indications and protocols in heart and lung diseases diagnostic procedures 4. Know indications for static and dynamic scintigraphy 5. Develop a basic understanding of scintigraphy of hepatobiliary and diagnostic 6. Discover nuclear medicine imaging in neurology, psychiatry, oncology, SNL and PET/CT procedure 7. Understand and learn the treatment with ^{131}I for thyroid differentiated carcinoma, treatment with MIBG in pediatric oncology, palliative radionuclide therapy of bone metastatic disease <p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"> - Instruction of patients about preparation for nuclear medicine procedures - Calculation of single doses for administration - Distinguishing different types of collimators, pinhole collimator - Analysis and interpretation of different examination (thyroid, bone, kidneys: dynamic and static renal scintigraphy, hepatobiliary scintigraphy, Meckel's diverticulitis, SLN, scintigraphy of somatostatin receptors) - Interpretation of SPECT, PET/CT acquisition - Identification of indications for PET/CT - Demonstration of specific parts of PET/CT, fusion of images
<p>4. Teaching methods</p>	<p>Lectures: 10 hours Practical work: 10 hours</p>
<p>5. Method of knowledge assessment and examination</p>	<p>Exam is carried out in two parts:</p> <ul style="list-style-type: none"> - Practical exam - Partial exam <p>Practical exam Practical exam involves assessing the acquired skills. Exam will be considered passed if the student gets at least 22 points (a maximum 40 points).</p> <p>Partial exam Partial exam is in a form of Multiple choice questions (MCQ) test and includes knowledge testing from all modules and contains a total of 30 questions, each correct answer brings 2 points, a total 60 points. A minimum of 33 points shall be deemed to be passed the student's examination. Number of points is added in forming the final grade.</p> <p>Final exam If student failed to pass the partial exam, the Final exam contains 30 MCQ questions, each correct answer brings 2 points, a total 60 points. The minimum number of points to pass the exam is 33 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</p>

	<p>Repeated and Remedial exam take place according to previously defined criteria of the final examination.</p> <p>The total number of points won on all forms of knowledge 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>Recommended:</p> <ul style="list-style-type: none">– Treves S.T. Pediatric Nuclear Medicine. Springer-Verlag; 1994. <p>Additional:</p> <ul style="list-style-type: none">– Ell PJ, Grambhir SS. Nuclear Medicine in Clinical Diagnosis and Treatment. Churchill-Livingstone; 2004.																							
7. Remark	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheater of the Medical Faculty in CCUS. The exercises will be realized at the Clinic for Endocrinology and Nuclear Medicine in 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 any working day pre-reserved with the stuff.</p>																							

PLAN OF SUBJECT: PEDIATRIC NUCLEAR MEDICINE

Week 15.	The form of teaching	Number of hours
Monday	Lecture: General aspect of pediatric nuclear medicine. Nuclear medicine diagnostic procedures of the endocrine diseases.	2
	Exercises: Know the principles of gamma cameras, radiopharmaceuticals, SPECT and PET/CT.	2
Tuesday	Lecture: Nuclear medicine diagnostic procedures in the skeletal and metabolic diseases. Nuclear medicine diagnostic procedures for renal and urologic diseases in children.	2
	Exercises: Understand diagnostic procedures in thyroid diseases and skeletal scintigraphy. Know indications for static and dynamic scintigraphy.	2
Wednesday	Lecture: Nuclear medicine diagnostic procedures in the gastrointestinal and hepatobiliary diseases in children and pediatric neurology.	2
	Exercises: Develop a basic understanding of scintigraphy of hepatobiliary and diagnostic. Discover nuclear medicine imaging in oncology, SNL and PET/CT procedure.	2
Thursday	Lecture: Nuclear medicine diagnostic procedures in pediatric oncology, PET/CT in children. Radionuclide therapy in children.	2
	Exercises: Understand and learn the treatment with I- 131 for thyroid differentiated carcinoma. Treatment with MIBG in pediatric oncology, palliative radionuclide therapy of bone metastatic disease.	2
Friday	Lecture: Partial exam	2
	Exercises: Practical exam	2
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0709	Course title: PET/CT IN CLINICAL PRACTICE		
Level: clinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Assistant Professor Nermina Beslic MD PhD, Professor Amela Begic MD PhD, Assistant Sejla Ceric MD MSc, Assistant Amila Basic MD			
1. Overall Objective	The overall objective of the PET/CT Course is to increase the understanding of basic principles, possibilities and limitations of PET/CT imaging.		
2. Course Content	The following topics will be covered within the Modules:		
	Module 1. Basics of PET/CT hybrid imaging, instrumentation, radiopharmaceuticals and biodistribution of FDG This module should cover basics of nuclear physics, production of PET radiotracers and PET/CT scanner design, principals of imaging glucose metabolism and normal biodistribution of FDG in the body.		
	Module 2. Use of 18F FDG PET/CT in oncology The role of this module is to introduce importace of PET/CT in oncology regarding staging, follow up and therapy response.		
	Module 3. Use of 18F FDG PET/CT in neurology The importance of this module is the introduction of PET/CT possibilities in diagnosis of brain diseases with respect to radiopharmaceutical choice and applied protocol.		
	Module 4. Use of 18F FDG PET/CT in cardiology The objective of this module is the introduction of PET/CT importance in diagnosis of cardiac diseases as well as steady growth in cardiac imaging with respect to novel radiolabelled compounds.		
	Module 5. Use of 18F FDG PET/CT in detection of infections and inflammations This module will shortly review the main indications for FDG PET/CT in this field and discus its advantages and pitfalls.		
	Module 6. Future directions of PET/CT imaging Short review of tehnology developement and different new NON FDG PET radiofarmaceuticals.		

<p>3. Learning Outcomes (Knowledge, skills and competences)</p>	<p>Through the Course students will increase understanding of basic principles of PET/CT imaging, application, possibilities and limitations of this diagnostic modality, as well as the terminology used in reports. Students should understand biochemical processes that are the basis of metabolic imaging, appearance of normal body distribution of radiopharmaceuticals, and factors that could influence interpretation.</p> <p><i>Through the lectures students will gain the following knowledge and competencies:</i></p> <ol style="list-style-type: none"> 1. Understanding molecular processes of different radiopharmaceuticals, which are the cornerstone of functional imaging. 2. Familiarization with biodistribution, pharmacokinetics and pharmacodynamics of 18F-FDG and factors that affect them. 3. Learning indications and prerequisites for 18F-FDG PET/CT examination and limits within indications, as well as standard operating procedures for PET/CT. 4. Gaining knowledge on the importance of PET/CT reports in the framework of clinical settings, which include staging of disease, evaluation of treatment response, changes in patient management 5. Use of other positron emitters and their value in routine use. 6. Gaining information on the future utility of the modality in diagnosis, clinical trials and use in radiation therapy planning. <p><i>Through practical laboratory work students will acquire the following skills:</i></p> <ol style="list-style-type: none"> 1. Analysis of medical data on PET/CT requests, familiarization with indication for 18F-FDG study according to current guidelines for PET/CT imaging 2. Estimation of factors that influence the optimal time for imaging 3. Interpretation of indications for contrast application, selection of acquisition protocols in accordance with indication 4. Evaluation of image quality, recognition of artifacts and assessment of the need for acquisition of additional images 5. Interpretation of Standardized Uptake Value (SUV) and factors that affect it 6. Analyze PET/CT images and familiarization with physiological distribution of FDG in the body.
<p>4. Teaching Methods</p>	<p>Lectures : 10 hours Practical work : 10 hours</p>

5. Method of Knowledge Evaluation and Examination	Practical exam Skills assessment will be carried out through a checklist consisting of the 10 tasks. The maximum number of points that a student can get is 40. In order to pass the practical exam, the student must score at least 22 points. Number of points is added in forming the final grade.																				
	Partial exam Multiple choice test consisting of 30 questions. Every correct answer will be rewarded with 2 points. A minimum of 33 points, a maximum 60 points shall be deemed to be passed the student's examination. Achieved points are added to other points and together form the final grade.																				
	Final exam If a student fails to pass the practical and/or partial exam during the academic session, it will be retaken during the final exam. Final exam has 30 MCQ, through which a student can earn 60 points. The minimum number of points to pass the exam is 33 points. The condition for taking the written part of the exam is a previously passed practical part of the exam.																				
	Repeated and Remedial exam Repeated and Remedial exam take place according to previously defined criteria of the final examination.																				
	The final grade is derived from the total score gained on both knowledge testing methods as follows: <table><tr><td>Rating</td><td>Number of points</td><td>Description Rating</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><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
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6. Literature	Recommended: – Lynch TB. PET/CT in Clinical Practice. Springer; 2007. Additional: – IAEA Human Health series No: 26. Standard operating procedures for PET/CT: A Practical Approach for use in adult oncology https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1616_web.pdf																				
7. Remark	The exercises can be accessed only by students holding a valid sanitary card. Consultation period for students is any working day pre-reserved with the staff.																				

PLAN OF SUBJECT: PET/CT IN CLINICAL PRACTICE

Week 15.	Form of teaching	Number of hours
Monday	Lecture: Basics of PET/CT hybrid imaging. Exercises: Familiarisation with instrumentation in PET/CT department. Demonstration of the value and limitation of PET/CT in routine clinical practice. Demonstration of work in the hot cell. Practical radiation protection in PET/CT.	2 2
Tuesday	Lecture: Production of 18F- FDG and biodistribution imaging. Clinical application of 18F – FDG PET/CT in oncology. Exercises: Pre-requisites for FDG PET/CT study, formal request for the study, informative conversation with the patient. Indications in regard to the kind of tumor and the clinical question. Evaluation of image quality, recognition of artifacts and assessment of the need for acquisition of additional images. Processing of the images, work with the software and interpretation.	2 2
Wednesday	Lecture: Clinical application of 18F – FDG PET/CT in neurology. Clinical application of 18F – FDG PET/CT in cardiology. Exercises: Presentation of possibilities and limitations of 18F – FDG PET/CT in diagnosis of brain diseases. Optimisation of the protocol in regard to indication. Selection of patients for PET/CT studies, the value of PET/CT in clinical settings, optimisation of the acquisition protocol. Presentation of cases.	2 2
Thursday	Lecture: Clinical application of 18F – FDG PET/CT in infection and inflammation. Future directions of PET/CT imaging. Exercises: Case reports in regard to fever of unknown origin, granulomatous and inflammatory diseases. Comparison of novel PET radiopharmaceuticals and their diagnostic possibilities with 18F-PET/CT. Image presentation.	2 2
Friday	Partial exam Practical exam	2 2
Week 16.	Final exam	
Week 17-20.	Repeated and Remedial exam	

Code: MFSE 0710	Course title: RHEUMATOID ARTHRITIS		
Level: clinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Šekib Sokolović, MD PhD; Samir Mehmedagić, MD			
1. Overall aim	The aim of Rheumatoid Arthritis is to gain knowledge about etiopathogenesis and epidemiology of rheumatoid arthritis, clinical image of rheumatoid arthritis, diagnosis of rheumatoid arthritis and novel therapy for the management of rheumatoid arthritis.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. Basic Aspects of Rheumatoid Arthritis The goal of the Module is to get to know the basic notion of rheumatoid arthritis with autoimmune mechanisms, etiopathogenesis, genetic and other factors significant in the etiology with epidemiology.</p> <p>Module 2. Diagnosis, Diagnostic Criteria and Differential Diagnosis of Rheumatoid Arthritis The goal of the Module is to introduce students with diagnosis, diagnostic criteria and differential diagnosis of rheumatoid arthritis.</p> <p>Module 3. Clinical manifestation of articular and extra articular changes and clinical syndromes coupled with rheumatoid arthritis The aim of the Module is to introduce students to clinical image, articular and extra articular changes and to secondary syndromes associated with rheumatoid arthritis.</p> <p>Module 4. Diagnostics of Rheumatoid Arthritis This module covers diagnostic procedures that include laboratory and X-ray examinations, as well as assessment of disease activity scores (DAS), functional capabilities (HAQ) and other tests in the assessment of anatomic and functional stages of rheumatoid arthritis.</p> <p>Module 5. Rheumatoid Arthritis Therapy The goal of the Module is to teach a conventional, biological and other therapies used in Rheumatoid Arthritis.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through lectures students will acquire following knowledge and competences:</i></p> <ul style="list-style-type: none">- recognize clinical symptoms and signs of rheumatoid arthritis- do a physical examination of patients- plan diagnostics procedures in setting diagnosis and differential diagnosis of the disease- plan an adequate optimal treatment <p><i>Through the practical exercises, students will acquire following skills:</i></p> <ul style="list-style-type: none">- take the correct anamnesis of the disease- carry out a physical examination of joints and observe changes- recognize extracorporeal manifestations- determine the degree of pain through the VAS scale- the DAS assessments- assess the functional ability and stage of disease (HAQ, I-IV stage)		

	<p>The skills that students need to know: Specific diagnostic methods used in detection of rheumatoid arthritis</p> <ul style="list-style-type: none"> - rheuma factor tests - anti-CCP test - X-ray of the joints - musculoskeletal ultrasound - arthrocentesis and analysis of synovial fluid - synovial biopsy - arthroscopy of the MRI joints <p>After one semester, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - A good physician practitioner must be familiar with methods of diagnosis, testing and treatment of rheumatoid arthritis. - Properly taken history and data obtained by the review and assessment of recent disease activity, anatomical and functional stages of diseases affecting the correct decision in the diagnostic and therapeutic treatment of patients.
4. Teaching methods	<p>Lectures: 10 hours Practical exercises: 10 hours</p>
5. Method of knowledge assessment and examination	<p>Students' knowledge evaluation will be carried out continuously during the course.</p> <p>Continuous assessment Continuous assessment includes checking the mastery of skills at the training through practical exam at the end of teaching week.</p> <p>Practical Exam The practical exam involves assessing the acquired skills processed through all modules. Evaluation of skills acquired is performed through the fulfillment of the tasks previously defined in the checklist after attended courses. Each task carries the appropriate number of points. The maximum number of points that a student can win is 40. In order to pass Practical Exam, the student must score at least 22 points. Number of points is added in forming the final grade.</p> <p>Partial Exam The Partial Exam is a 30 MCQ question test that examines the knowledge acquired through all modules. Each correct answer carries 2 points, a total of 60 points. To qualify for the Exam, you must score at least 33 points. The points scored are added to the other points and finalized by the final score.</p> <p>Final exam If a student has not passed the practical exam at the end of attended courses, evaluation of skills acquired is performed on the final exam through the fulfillment of the tasks previously defined in the checklist. Each task carries the appropriate number of points. The maximum number of points that a student can win is 40. In order to pass Practical Exam, the student must score at least 22 points. The points scored are added to the other points and finalized by the final score.</p> <p>The student who did not pass the partial exam at the end of the course can access to final written exam. Final exam consists of 30 MCQ questions. Every correct answer carries 2 points, a total of 60 points. In order for the exam to be passed, the student must obtain at least 33 points. Achieved points are added to other points and together form the final score.</p> <p>Condition to enter written part of exam is to pass practical exam previously.</p>

	<p>Repeated and Remedial exam Repeated and Remedial exam take place 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>Obligatory:</p> <ul style="list-style-type: none">– Klippel JK, Dieppe P. Rheumatology, 6th edition. Mosby international; 2014.– Textbook on rheumatic diseases. Eular. Johannes wj bijlsma, bmj group, 2012.– Hatam P, Smeatham A. Special tests in musculoskeletal examination. Elsevier; 2010.– Mccarty DJ. Arthritis and allied condition,12th edition. Lea & Febiger; 2005. <p>Additional:</p> <ul style="list-style-type: none">– Sterling G. West. Rheumatology secrets. Hanley% Belfus, inc; 2004.– Idippel JH, Dieppe PA. Practical rheumatology. Times mirror International Publisher limited.;1995.– 3. Schumacher HR. Example on the rheumatic diseases, XIII th edition. Atlanta Arthritis foundation; 2001.																					
7. Remark	<p>Lectures and exercises are held according to the Exercise program at the Clinic for Cardiology, CCUS. The number of students per assistant is between 6 and 8. 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. Hours of consultation is everyday from 12-14 hours. E-mail of responsible teacher: sekib.sokolovic@mf.unsa.ba</p>																					

**IMPLEMENTATION PLAN AND PROGRAM FOR THE SUBJECT
RHEUMATOID ARHRITIS**

Week 15.	The form of teaching	Number of hours
Monday	<p>Lecture: Definition, epidemiology and etiopathogenesis RA 2</p> <p>Practice: Introduce students with the concept of autoimmune rheumatic diseases, Reuma factor, anti-CCP test and other autoantibodies, disease prevalence in the general population and factors in the onset of the disease.</p>	<p>2</p> <p>2</p>
Tuesday	<p>Lecture: Clinical Characteristics of Rheumatoid Arthritis 2.</p> <p>Exercises: Familiarize students with clinical picture, articular and 2 extra-articular changes, and with secondary syndromes associated with rheumatoid arthritis.</p>	<p>2</p> <p>2</p>
Wednesday	<p>Lecture: Diagnosis of rheumatoid arthritis 2.</p> <p>Exercises: Introducing students with diagnostic criteria and 2 differentiation of diastolic agnostic of rheumatoid arthritis and diagnostic procedures: laboratory tests, radiological methods, arthrocentesis, synovial fluid analysis, arthroscopy and biopsy and sonic.</p>	<p>2</p> <p>2</p>
Thursday	<p>Lecture: Therapy of rheumatoid arthritis 2.</p> <p>Exercises: Introduce students to conventional, contemporary 2 biological and other forms of rheumatoid arthritis therapy Lecture.</p>	<p>2</p> <p>2</p>
Friday	<p>Lecture: Partial exam</p> <p>Exercises: Practical exam</p>	<p>2</p> <p>2</p>
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0711	Course title: TUBERCULOSIS		
Level: clinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Belma Paralija, MD PhD; Senior Assistant Medžida Rustempašić, MD Msc			
1. Overall aim	The overall aim of the Tuberculosis Course is to increase understanding of pathogenesis and clinical features of pulmonary and extrapulmonary tuberculosis (TB), primary and postprimary pulmonary TB, diagnostic methods, DOTS strategy in TB treatment, National TB Program guidelines of Bosnia and Herzegovina in TB prevention and treatment, as well as notification and registration of TB cases and assessment of treatment outcome.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1. Etiology, pathogenesis and epidemiology of tuberculosis Acquire knowledge concerning pathogenic species belonging to the Mycobacterium tuberculosis (M. tuberculosis), TB pathogenesis and epidemiology.</p> <p>Module 2. Clinical features of tuberculosis Learn about clinical presentation of pulmonary and extrapulmonary TB, primary and postprimary pulmonary TB.</p> <p>Module 3. Diagnosis of tuberculosis based on bacteriology. Chest X-rays abnormalities related to active pulmonary tuberculosis Acquire knowledge concerning diagnostic methods of TB based on bacteriology (sputum smear microscopy and culture methods), drug susceptibility test, Quantiferon test and distinguishing active and latent TB, emphasizing the importance of chest X-ray as an useful tool that complement bacteriological examination in the diagnosis of pulmonary TB. Learn about pleural fluid examination (biochemical, cytopathological; examination of pleural fluid for acid-fast bacilli, i. e. M. tuberculosis).</p> <p>Module 4. Treatment of tuberculosis Learn about antituberculous drugs, recommended daily dosages and common adverse effects, recommended treatment categories and regimens for drug sensitive TB as well as general principles for designing a special regimen for treating multidrug resistant TB (MDR-TB) and extensively drug resistant TB (XDR-TB) according to the National TB Program of Bosnia and Herzegovina.</p> <p>Module 5. Tuberculosis in the immunocompromised patient Learn about TB features in immunocompromised patient. Discover that screening for latent TB infection prior to immunosuppressive treatment could be a very useful preventive measure. The students will be familiar with tests for the detection as well as treatment of latent TB.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>Students will improve their knowledge of etio-pathogenesis and clinical features of tuberculosis.</p> <p>Through practical work students will learn how to recognize signs and symptoms of tuberculosis, how to perform clinical examination of TB patients and new therapeutic modalities.</p> <p><i>Through the lectures the students will gain the following knowledge and competences:</i></p>		

	<p><i>Through the practical work the students will acquire the following skills:</i></p> <ul style="list-style-type: none"> -Recognition of predominant symptoms -Performing clinical examination -Interpretation of chest X-rays -Establishment of differential diagnosis of different chest X-rays shadows -Sputum induction and proper taking sputum and other samples for acid-fast bacilli examination -Interpretation of diagnostic procedures based on TB bacteriology -Administration of treatment according to disease categories -Long term following up of patient treatment -Interpretation of pleural fluid findings -Proper notification and registration of TB cases -Assessment of treatment outcome
4. Teaching methods	<p>Lectures: 10 hours</p> <p>Practical work: 10 hours</p>
5. Method of knowledge assessment and examination	<p>The knowledge assessment will be carried out as continuous and in the form of final examination.</p> <p>Continuous knowledge assessment Continuous knowledge assessment will be carried out through Partial exam and Practical exam.</p> <p>Practical exam Practical exam consists of skill assessment adopted through modules. The evaluation of adopted skills is performed by completing tasks previously defined in check list. To be considered passed practical exam, the student will need to earn at least 22 points; maximal 40 points. The achieved number of points is being added to the other points in final mark forming.</p> <p>Partial exam Partial exam is in a form of written test with 30 Multiple choice questions (MCQ). Each exact answer carries 2 points; with maximal 60 points for all exact answers. To be considered passed partial exam, the student will need to earn at least 33 points. The achieved number of points is being added to the other points in final mark forming.</p> <p>Final exam If the student failed to pass the Practical exam, the evaluation of adopted skills is being performed through practical part of Final exam by completing tasks previously defined in check list. To be considered passed practical part of Final exam, the student will need to earn at least 22 points; maximal 40 points. The achieved number of points is being added to the other points in final mark forming. Successfully passed Practical exam is obligatory for written test performing. If the student failed to pass Partial exam during the course, written final exam in the form of Multiple choice questions (MCQ) tests with 30 questions is being performed. Each exact answer carries 2 points; with maximal 60 points for all exact answers. To be considered passed written exam, the student will need to earn at least 33 points. The achieved number of points is being added to the other points in final mark forming.</p> <p>Repeated and Remedial exam</p>

	<p>Repeated and Remedial exam take place according to previously defined criteria of the final examination.</p> <p>Final mark forming 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 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 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>Recommended:</p> <ul style="list-style-type: none">– Lange C, Migliori G.B. European Respiratory Monograph 58- Tuberculosis. Norwich, UK: European Respiratory Society, 2012.– Raviglione MC, O'Brien RJ. Tuberculosis. In: Fauci AS et al. Harrison's Principles of Internal Medicine. 17th Edn. New York: McGraw-Hill Medical Publishing Division Inc 2008; pp 1006-1020.– Dizdarević Z, Žutić H, Paralija B. National TB Program of Bosnia and Herzegovina (Translator in English: Paralija Belma, MD). Sarajevo: Ministry of Health of Federation of Bosnia and Herzegovina, 1999. <p>Additional:</p> <ul style="list-style-type: none">– Žutić H. Tuberkuloza. U: Mehić B. i sar. Pulmologija. Sarajevo: Nacionalna i Univerzitetska biblioteka Bosne i Hercegovine, Respiratorno udruženje u Bosni i Hercegovini, 2016; str. 83-104.– Žutić H. i sar. Program za kontrolu tuberkuloze u Federaciji Bosne i Hercegovine (NTP) 2013-2017. Sarajevo: Federalno Ministarstvo zdravstva, 2014.																					
7. Remark	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheaters of the Medical Faculty. The exercises will be realized at the Clinic for Pulmology, CCUS. All forms of instruction are compulsory. Exercises can be attended only by students who have a valid sanitary booklet and a proper uniform. The number of students per assistant is between 6 and 8. Fixing absences from classes is in accordance with applicable legal regulations. Hours of consultation is everyday from 12-14 hours. E-mail of responsible teacher: belma.paralija@mf.unsa.ba</p>																					

PLAN OF COURSE: TUBERCULOSIS

Week 15.	The form of teaching	Number of hours
Monday	<p>Lecture: Etiology, pathogenesis, epidemiology of tuberculosis</p> <p>Practice: Taking patient disease history and proper clinical examination performing</p>	2 2
Tuesday	<p>Lecture: Clinical features of tuberculosis</p> <p>Practice: Recognition of predominant symptoms and clinical presentation of pulmonary and extrapulmonary tuberculosis, primary and postprimary pulmonary tuberculosis</p>	2 2
Wednesday	<p>Lecture: Diagnosis of tuberculosis based on bacteriology. Chest X-rays abnormalities related to active pulmonary tuberculosis</p> <p>Practice: Sputum induction and proper sputum and other samples taking for acid-fast bacilli examination (M. tuberculosis). Demonstration of diagnostic procedures based on TB bacteriology in the Referral Microbiologic Laboratory. Interpretation of chest X-rays and establishment of differential diagnosis of different chest X-rays shadows</p>	2 2
Thursday	<p>Lecture: Treatment of tuberculosis, detection and treatment of latent tuberculosis</p> <p>Practice: Administration of TB treatment according to disease categories. Long term following up of patient treatment and treatment outcome assessment. Interpretation of tests for the detection of latent TB. Treatment of latent TB in immunocompromised patients</p>	2 2
Friday	<p>Practical exam</p> <p>Partial exam</p>	2 2
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0712	Course title: CHRONIC LIVER DISEASES		
Level: clinical	Year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Assistant Professor Azra Husić-Selimović, MD PhD; Senior assistant Nadža Zubčević, MD PhD			
1. Overall aim	To introduce a student with the symptomatology of chronic liver diseases, diagnostic protocols, -acquire knowledge and skills about chronic liver diseases, with therapeutic protocols in chronic liver diseases generally and specified depending on the aetiology of disease and introduce a student with invasive and non-invasive methods in the diagnosis of liver disease (liver biopsy, Fibro Test and transient elastography-FibroScan).		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Modul 1. Etiology and pathogenesis of chronic liver disease The aim of the Module is to extend the knowledge of the newly established pathophysiological mechanisms of chronic liver disease, as well as etiological factors in liver disease.</p> <p>Modul 2. Diagnosis of chronic liver disease and interpretation of findings The aim of the Module is to determine the significance of functional liver tests in the diagnosis of chronic liver disease (AST, ALT, INR, APTT, bilirubin, proteinogram) as well as the determination of their pathological values according to the etiology of chronic liver disease. Another aim refers to monitoring of liver parameters in hepatic coma and advanced liver disease (NH3), as well as determining levels of consciousness disorders.</p> <p>Modul 3. Therapeutic approaches: conservative and endoscopic interventions at different stages of chronic liver disease Acquire knowledge about therapeutic protocols in chronic liver diseases according to the etiology of disease (viral, autoimmune, alcoholic, metabolic diseases). Understanding of preventive measures in the early phase of chronic liver disease according to the etiological factor (alcohol abstinence, treatment of viral hepatitis, obesity reduction and treatment of metabolic syndrome in non-alcoholic steatohepatitis)</p> <p>Modul 4. Liver Transplantation as an ultimate therapeutic approach The aim of the Module is to learn about liver transplantation as a final therapeutic approach in the advanced stages of liver disease.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>Through the practical work at the Gastroenterohepatology department, students will acquire following skills:</p> <p>Skills that a student needs <i>to know and practice</i>:</p> <ul style="list-style-type: none">- taking an anamnesis and a clinical examination of patients with chronic liver disease- application of diagnostic and therapeutic protocols of chronic liver diseases- performing abdominal paracentesis in patients with ascites. <p>Skills that a student needs to observe (<i>know how and when</i>):</p> <ul style="list-style-type: none">- performing percutaneous abdominal ultrasound- proximal edoscopy- preparation of a patient for liver transplants- application of screening methods for hepatocellular carcinoma (HCC).		

	<p>After attending lectures on chronic hepatic diseases, <i>the student will adopt attitudes:</i></p> <ul style="list-style-type: none">• necessary early diagnostic methods for chronic liver diseases depending on the etiological factor• realise the importance of timely treatment to prevent complications of chronic liver diseases• significance of screening for hepatocellular carcinoma in patients with chronic liver diseases.						
4. Learning methods	<p>Teaching contains of:</p> <p>-Lectures: 10 hours</p> <p>-Exercises, total: 10 hours</p> <p>Practical work in the ambulance: 3 hours</p> <p>Practical work in the hospital section: 3 hours</p> <p>Practical work in endoscopic salon and ultrasound abdominal cabinet: 4 hours</p>						
5. Knowledge assessment methods	<p>Student knowledge checking will be carried out continuously during the course, including continuous checking of practical skills.</p> <p>Practical exam</p> <p>Practical exam includes list of mastery skills-practice lessons checklist. The maximum number of points is 40, the minimum number of points for successfully passed exam is 22.</p> <p>Partial exam</p> <p>Knowledge acquired through all modules will be tested with 30 multiple choice questions (MCQs). Each correct answer carries 2 points. The minimum number of points for successfully passed exam is 33.</p> <p>Final exam</p> <p>If a student has not passed Practical exam at the end of attended courses, evaluation of skills acquired is performed on the final exam through the fulfillment of the tasks previously defined in the checklist.. To be considered passed practical part of final exam, the student will need to earn at least 22 points; maximal 40 points.</p> <p>The student who did not pass Partial exam at the end of the course can access to final exam. Final exam consists of 30 MCQ questions. Every correct answer carries 2 points, a total of 60 points. To qualify for the Exam, you must score at least 33 points. Condition to enter written part of exam is to pass practical exam previously.</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>All passed parts of the exam are valid until the end of the current academic year.</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></table>	Rating	Number of points	Description Rating	10 (A)	95-100	remarkable success without mistakes or with minor errors
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	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	Mandatory: <ul style="list-style-type: none"> – Mauss S, Berg T, Rockstroh J, Sarrazin C, Wedemeyer H (eds). Hepatology Textbook. 8th edition. Medizin Fokus Verlag; 2017. – Hawkey CJ, Bosch J, Richter JE, Garcia-Tsao G, Chan FKL (eds.). Textbook of Clinical Gastroenterology and Hepatology. Wiley-Blackwell; 2012. Extended: <ul style="list-style-type: none"> – Bacon B, O'Grady J, DiBisceglie A, Lake J. Comprehensive Clinical Hepatology. 2nd Edition. Elsevier Ltd; 2006. – Vrhovac B, Jakšić B, Reiner Ž, Vucelić B. Interna medicina, 4. izdanje. Zagreb: Naklada Ljevak; 2008. 		
7. Remarks	<p>Lectures and exercises will be held according to the plan and program at the University Clinical Center in Sarajevo. All forms of teaching are mandatory. 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>Consultations every day in the term of 12 to 14 h.</p> <p>E-mail of responsible teacher: azra.husic@mf.unsa.ba</p>		

PLAN OF THE SUBJECT: CHRONIC LIVER DISEASES

Week 15.	The form of teaching	Number of hours
Monday	Lecture: Etiology and pathogenesis of chronic liver disease	2
	Exercises: Anamnesis and physical examination of patients with chronic liver disease	2
Tuesday	Lecture: Diagnosis of chronic liver disease and interpretation of findings. Therapeutic approaches; conservative measures for treating chronic liver disease	2
	Exercises: Evaluation of functional liver tests, interpretation of viral and serological findings in chronic liver diseases of viral etiology.	2
	Get acquainted with the therapeutical protocols of chronic liver disease	
Wednesday	Lecture: Diagnostic and interventional endoscopic examinations at different stages of chronic liver disease. Ultrasound examination of the liver	3
	Exercises: Principles of ultrasound examination and endoscopic methods in patients with chronic liver disease.	2
Thursday	Lecture: Liver Transplantation as ultimate therapeutic approach	2
	Exercises: Get acquainted with the preparation of a patient for liver transplants	2
Friday	Exercises: Practical exam	2
	Lecture: Partial exam	1
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0713	Course title: TOXIC CHEMICALS AND HUMAN HEALTH		
Level: preclinical	Study year: IV	Semester: VII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Amra Čatović MD PhD			
1. Overall aim	The overall aim of the Toxic Chemicals And Human Health course is to give students the basic principles governing the behavior and effects of toxic chemicals on biological systems, including: toxicity testing; the disposition of chemicals in the body; modifiers of toxic response; fate and effects of chemicals in the environment; chemicals and cancer; chemicals and birth defects; toxicity risk assessment and government regulation of chemical hazards in the home, the workplace and the general environment. Focus is on human and environmental health impacts of chemicals.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Basic principles governing the behavior and effects of toxic chemicals</p> <p>Module 2. Types and routes of exposure</p> <p>Module 3. Factors that modify toxic responses</p> <p>Module 4. Ecotoxicology</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>Students will acquire knowledge necessary for understanding how chemicals can harm human health and how to identify, prevent, and control such effects. They will be able to identify the consequences of toxicant exposure for different organs, especially the liver, the kidneys, the brain, and the cardiovascular and endocrine systems, and why some toxicants target these organs. Students will be able to describe the major sources of pollution in air, water and soil.</p> <p>Through practical work the students will develop skills to categorize toxicants with respect to chemical class, mode of action, and potency.</p> <p><i>Through the lectures the students will gain following knowledge and competences to:</i></p> <ol style="list-style-type: none">1. Identify the major types and sources of chemicals including pesticides, heavy metals, solvents, gases, halogenated hydrocarbons, polycyclic aromatic hydrocarbons, drugs, food additives, and toxins produced by bacteria, plants and animals.2. Describe distribution, fate and ecological effects of various pollutants, as fundamental principles by which contamination may impact human health.3. Explain various risk management strategies used to limit toxicant exposure.4. Identify susceptible periods of embryonic/fetal development that predispose to various kinds of chemical-induced birth defects, and explain the value of comparative animal approaches for understanding mechanism of action for developmental toxicants. <p><i>Through the practical work students will acquire following skills to:</i></p> <p>- Identify toxicants commonly found in the home environment, discuss the design of consumer products that limit chemical exposures</p>		

	<ul style="list-style-type: none">- Describe the means by which exposure criteria and standards are established, and discuss the economic, political, and ethical dilemmas associated with the regulation of toxicants- Discuss occupational practices and regulations designed to limit chemical exposures and toxicity in the workplace, biomonitoring and the roles of occupational health professionals in workplace safety.																					
4. Teaching methods	Lectures: 10 hours Practical work: 10 hours																					
5. Method of knowledge assessment and examination	<p>Knowledge assessment will be carried out continuous during the semester and as written final exam.</p> <p>Continuous knowledge and skills assessment will be carried out through completing assignments, class participation and Term Project.</p> <p>Final exam will consist of 2 parts: test in the form of Multiple choice questions (MCQ) test and Extended response questions (ERQ) test.</p> <p>Final grades will be distributed as follows: Attendance, completing assignments and class participation: 20 points Term Project: 30 points Final Exam: 50 points</p> <p>Final grade will be calculated as a pondered arithmetic mean (i.e. joint arithmetic mean) of all grades given throughout semester.</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><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>	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	Required: <ul style="list-style-type: none">– Frumkin H. Environmental Health: From Global to Local. San Francisco: Jossey-Bass; 2016.																					
7. Notes	All proposed teaching types are obligated. Fixing absences from classes is in accordance with applicable legal regulations. Consultation hours are every day 12.00-13.00 with prior announcement by email: amra.catovic@mf.unsa.ba																					

COURSE PLAN: TOXIC CHEMICALS AND HUMAN HEALTH

Days	Form of Instructions and materials	Number of classes
Monday	<p>Lecture: Basic principles - factors that affect toxicity.</p> <p>Disposition of toxicants. Target organ toxicity.</p> <p>Exercises: Types and modes of exposure</p>	3 1
Thursday	<p>Lecture: Toxic effects of pesticides.</p> <p>Natural toxins.</p> <p>Exercises: Chemicals in soil and implications for food supplies.</p> <p>Preparations in the house.</p> <p>Assessment of health risk associated with natural toxins.</p>	2 3
Wednesday	<p>Lecture: Ecotoxicology. Exposure biomarkers.</p> <p>Industrial chemicals.</p> <p>Exercises: Food additives and contaminants</p>	3 1
Tuesday	Exercises: Term project	5
Friday	<p>Lecture: Epidemiological approach to toxicants.</p> <p>Primary and secondary prevention.</p>	2
Weeks. 17/18	Final exam (regular term)	
Weeks 19/20	Final exam (make-up examination term)	
September	Final exam (September examination exam)	

EIGHT (VIII) SEMESTER (SUMMER)						
Code	Course Title	L	P	S	TCH	ECTS
MFSE 0801	Neurology	30	65	15	110	7
MFSE 0802	Psychiatry	45	45		90	7
MFSE 0803	Infectious Disease	28	60	2	90	6
MFSE 0804	Radiology	35	35		70	4
MFSE 0805	Dermatovenereology	30	30		60	
MFSE 0806-0816	Elective Course 1	10	10		20	1
	TOTAL	178	245	17	440	30

INTERNSHIP (INTERNAL MEDICINE)	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 0806 Chronic Kidney Disease

MFSE 0807 Clinical Neurophysiology

MFSE 0812 Neurosonology

MFES 0813 Prevention of Cardiovascular Diseases

MFSE 0814 Clinical Microbiology

MFES 0815 Rehabilitation of Patients after Stroke

MFSE 0816 Skin Infections

MFSE 0817 Nutrition for Health Promotion and Disease Prevention

Code: MFSE 0801	Course title: NEUROLOGY		
Level: clinical	Year: IV	Semester: VIII	ECTS: 7
Status: obligatory	Total contact hours: 110		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate professor Enra Mehmedika-Suljić, MD PhD; Associate professor Jasminka Delilović-Vranić, MD PhD; Assistant professor Selma Šabanagić-Hajrić, MD PhD; Senad Drnda, MD PhD; Admir Mehićević, MD MSc			
1. Overall aim	Introduce student with clinical picture of the most common central and peripheral nervous system disorders, nervous sequelae of other diseases, infections and injuries, current diagnostic procedures, correct result interpretation, contemporary therapeutic possibilities, perspective of neurological disorders and possible prevention thereof.		
2. Course contents	<p>Through lectures from the course the student will adopt the following knowledge:</p> <p>Module 1. Introduction to neurology, background, classification of neurological disorders Objective of the Module is to introduce students with historical development of neurological sciences and basic classification of neurological disorders.</p> <p>Module 2. Disorders of consciousness (quantitative and qualitative), crisis of consciousness and sleep disorders Objective of the Module is to introduce students with differential diagnosis of crisis of consciousness and sleep disorders, basic classification principles, diagnostic, treatment and outcome of the disorder.</p> <p>Module 3. Epilepsy and epileptic syndromes Objective of the Module is to introduce students with symptoms, classification, differential diagnosis, diagnostic possibilities and principles of epilepsy treatment.</p> <p>Module 4. Headaches, neuralgia, increased intracranial pressure syndromes Objective of the Module is to introduce students with types of headaches, dominant symptoms, diagnostic, treatment possibilities and differential diagnosis.</p> <p>Module 5. TIA (Transient ischemic attack), stroke (epidemiology, etiology, risk factors, physiology and pathophysiology of cerebral blood flow) Objective of the Module is to introduce students with transient ischemic events in the CNS, prevalence, epidemiology and stroke risk factors, symptoms and diagnostic.</p> <p>Module 6. Stroke (classification, therapy) Objective of the Module is to introduce students with types of stroke, their classification, treatment and outcome.</p> <p>Module 7 Dementia, delirium This Module will introduce students with differential diagnosis of cognitive disorders, basic classification principles, diagnostic, treatment and outcome of these disorders.</p> <p>Module 8. Movement and cerebellum disorders</p>		

	<p>Objective of the Module is to introduce students with symptoms, classification of movement disorders and neurological disorders occurring as a result of cerebellum disorder, diagnostic procedures, differential diagnosis and therapy.</p> <p>Module 9. Head injuries and their neurological sequelae. The CNS infections Objective of the Module is to introduce students with the leading symptoms occurring after an injury or the central nervous system infection, diagnostic procedures, differential diagnosis, treatment and outcome.</p> <p>Module 10. Brain and spinal cord tumors Objective of the Module is to introduce students with symptoms and signs, diagnostic, differential diagnosis and therapy of the CNS tumors.</p> <p>Module 11. Demyelinating CNS disorders Objective of the Module is to introduce students with symptoms and signs of demyelinating disorders and multiple sclerosis as a representative of this group of diseases, diagnostic procedures, setting diagnosis, and contemporary treatment principles.</p> <p>Module 12. Neuromuscular disorders Objective of the Module is to introduce students with symptoms of the disease attacking muscles and neuromuscular junction, diagnosis setting, treatment measures and outcome thereof.</p> <p>Module 13. Poisoning, alcoholism, systemic and metabolic disorders Objective of the Module is to introduce students with symptoms and signs of the most prevalent poisoning agents providing neurological symptoms, and with systemic metabolic disorders providing neurologic symptoms and clinical picture of neurological disorders, as well as with diagnosis setting and treatment principles.</p> <p>Module 14. Peripheral nervous system and disorders. Spinal Cord disorders. Objective of the Module is to introduce students with the most prevalent symptoms of the disease attacking spinal cord and peripheral nerves, with setting correct diagnosis, diagnostic possibilities and therapeutic measures.</p> <p>Module 15. Neurological emergencies Objective of the Module is to introduce students with the most prevalent neurological conditions, diagnostic procedures and emergency treatment measures.</p>
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<p>3. Learning outcomes: knowledge, skill and competences</p>	<p>Following successful completion of the Course the students will be able to:</p> <ul style="list-style-type: none"> - recognize symptoms and clinical manifestations of neurological disorders - perform practical examination of patients applying acquired skills - plan current diagnostic procedures in setting diagnosis and differential diagnosis of neurological disorders - plan treatment of neurological disorders, all in accordance with the existing neurological disorders classification system. <p><i>The skills which student need to apply in practice (know how to proceed) :</i></p> <ul style="list-style-type: none"> - to approach a patient with neurological disorder in either conscience or unconscious state - to assess the level of consciousness using the Glasgow Coma Scale - to adequately take anamnesis data - to question a patients by systems - to perform cranial nerve examination (I – VI) - to perform cranial nerve examination (VII – XII) - examination of the neck, torso, upper and lower extremities (trophy, tonus, mobility, myotatic reflexes, muscle strength and flexibility stretching tests) - sensitivity analysis - extrapyramidal examination - cerebellar examination - walk-through test <p><i>The skills student need to adopt (to know when and how)</i></p> <ul style="list-style-type: none"> - lumbar puncture and examination of liquor - examination of higher cortical functions (speech, apraxia, agnosia, lexis, calculia) - evaluation of autonomous nervous system - electrophysiological diagnostic techniques: EEG, EMNG, EP, (electroencephalography, electromyoneurography, evoked cerebral potentials: VEP, AEP, SSEP) - Transcranial Doppler (TCD) - Basic imaging techniques (CT, head MRI) <p>After studying the course in neuroscience, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - Acquired knowledge in neurology can be used in prevention, early detection, timely diagnosis, efficient and comprehensive treatment and rehabilitation of patients with neurological disorders. - In the end, the acquired knowledge will contribute to better life quality of life for the sick, reduction of morbidity and mortality, and disability attributed to a significant number of neurological diseases.
<p>4. Teaching methods</p>	<p>Course in “Neurology” will include the total of 110 hours as follows:</p> <ul style="list-style-type: none"> - Lectures : 55 hours - Practical work: 55 hours

<p>5. Method of knowledge assessment and examination</p>	<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 1, Practical exam 2, Partial exam 1 and Partial exam 2.</p> <p>Practical exam 1 It involves evaluation of acquired skills related to taking the anamnesis, heteroanamnesis and physical examination determined in Modules 1-7. The evaluation of acquired skills is performed by fulfilling tasks previously defined in the checklist. The total number of points the student can earn in this part of the continuous knowledge testing is 20. The student must earn at least 11 points in order for the practical exam part 1 to be considered successful.</p> <p>Partial exam 1 It involves a written test with 30 multiple choice questions (MCQ). The exam will test the knowledge acquired in Modules 1-7. Each correct answer is worth 1 point out of the total of 30 points. The student must earn at least 17 points for the exam to be considered successful.</p> <p>Practical exam 2 It involves the evaluation of acquired knowledge related to anamnesis taking, neurological examination of patients worked out in Modules 8-15. The evaluation of the acquired skills is performed by fulfilling the tasks previously defined in the checklist. Each task carries a certain number of points. Maximum number of points the student can earn within this part of the continuous knowledge testing is 20. The student must earn a minimum of 11 points.</p> <p>Partial exam 2 Partial exam 2 is a test comprising 30 MCQ, used to check the knowledge acquired in Modules 8-15. Each correct answer is worth 1 point out of the total of 30 points. The student must earn at least 17 oints for the exam to be considered successful.</p> <p>Final exam 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, with evaluation and crediting criteria identical to those applied in practical and partial exams. If the student fails to pass both practical exam parts, the practical part of the final exam has two checklists through which the students may earn a maximum of 40 points. Minimum number of points for a successful exam result is 22. Only students who have passed the overall practical exam may enter the written part of the Final exam. If the student fails to pass any partial exams in the Neurology course, the written part of Final exam contains 60 MCQ, through which the student may earn a maximum of 60 points. Minimum number of credits for a successful exam result is 34.</p> <p>Repeated and Remedial exam Repeated exam and Remedial exam are performed in accordance with previously defined Final exam criteria.</p> <p>Grade is defined by summing up all points earned for each type of knowledge testing.</p>
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6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">– Ropper AH, Samuels MA, Klein JP. Adamas and Victoria's Principles of Neurology, 11th ed. McGraw-Hill Global Education Holdings; 2018. 1. <p>Additional:</p> <ul style="list-style-type: none">– Jones KJ. Neurological assessment. A Clinician's Guide. Elsevier; 2014.																					
7. Notice	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheaters in CCUS. The exercises will be realized at the Neurology Clinic in 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 any working day pre-reserved with the stuff.</p> <p>E-mail of Head of Departement: enra.suljic@mf.unsa.ba</p>																					

COURSE IMPLEMENTING PLAN: NEUROLOGY

Week 1.	Form of teaching	Number of hours
Monday	Lecture: Introduction to neurology, background, classification of neurological disorders	3
	Practical work: - technique of taking anamnesis data by system - technique of taking relevant hetero-data - inspection of patients, observation of walking - establishing adequate patient-doctor relationship	3
Tuesday	Lecture: Disorders of consciousness (quantitative and qualitative), crisis of consciousness and sleep disorders	3
	Practical work: - approach to a patient with neurological disorder in either conscious or unconscious state - adopting the use of the Glasgow Coma Scale to assess the level of consciousness - examining quantitative conscious disorders - examining qualitative conscious disorders - exercising a differential diagnosis of crises of conscious on the basis of similarities and differences	3
Wednesday	Lecture: Epilepsies and epileptic syndromes	3
	Practical work: - technique of neurological examination of a patient in postical state - introduction to electroencephalography (EEG) and change in the EEG distinctive for epilepsies	3
Thursday	Lecture: Headaches, neuralgia, increased intracranial pressure syndromes	3
	Practical work: - examination of cranial nerves (I - VI)	3
Friday	Lecture: TIA (Transient ischemic attack), stroke (epidemiology, etiology, risk factors, physiology and pathophysiology of cerebral blood flow)	3
	Practical work: - examination of cranial nerves (VII - XII) - Introduction to Transcranial Doppler (TCD)	3
Week 2.	Form of teaching	Number of hours
Monday	Lecture: Stroke (classification, therapy)	3
	Practical work:	3

	- examination of the neck, torso, upper and lower extremities (trophy, tonus, mobility, myotatic reflexes, muscle strength and flexibility stretching tests)	
Tuesday	Lecture: Dementia, delirium Practical work: - sensitivity analysis - examination of higher cortical functions (speech, apraxia, agnosia, lexis, calculia) - exercising the performanse of own reflexis among students	3 3
Wednesday	Lecture: Movement disorders Practical exam 1	3 3
Thursday	Lecture: Cerebellum disorders Partial exam 1	3 2
Friday	Lecture: Head injuries and their neurological sequelae, the CNS infections Practical work: - Anamnesis, heteroanamnesis, assessment of consciousness, Glasgow Coma Scale	3 3
Week 3.	Form of teaching	Number of hours
Monday	Lecture: Brain and spinal cord tumors Practical work: - extrapyramidal examination - cerebellar examination and walk-through test - evaluation of autonomous nervous system - basic imaging techniques (CT, MRI)	3 3
Tuesday	Lecture: Demyelinating CNS disorders, multiple sclerosis Practical work: - Independent anamnesis taking and neurological examinations in groups of three students	3 3
Wednesday	Lecture: Neuromuscular disorders Practical work: - lumbar puncture and examination of liquor	3 3
Thursday	Lecture: Neurological sequelae of chronic alcoholism and other intoxications Practical work:	3

	- electrophysiological diagnostic techniques: EEG, EMNG, EP, (electroencephalography, electromyoneurography, evoked cerebral potentials: VEP, AEP, SSEP)	3
Friday	Lecture: Systemic and metabolic disorders of nervous system	3
	Practical work: - Independent anamnesis taking and neurological examinations in groups of three students	3
Week 4.	Form of teaching	Number of hours
Monday	Lecture: Peripheral nervous system and disorders Spinal Cord disorders	3
	Practical work: Independent anamnesis taking and neurological examinations	3
Tuesday	Lecture: Neurological emergencies	3
	Practical work: - Independent anamnesis taking and neurological examinations, Transcranial Doppler (TCD) - exercising the performanse of own reflexis among students	3
Wednesday	Practical work: - independent anamnesis taking and neurological examinations - exercising the performanse of own reflexis among students - lumbar puncture - electrophysiological diagnostic techniques: EEG, EMG, VEP, AEP, SSEP	3
	Practical exam 2	3
Thursday	Partial exam 2	2
Week 16.	Final exam	
Week 17-20.	Repeated and Remedial exam	

Code: MFSE 0802	Course title: PSYCHIATRY		
Course level: clinical	Year: IV	Semester: VIII	ECTS : 7
Status: obligatory	Total contact hours: 90		
Prerequisites:	According to the Study Regulation		
Lecturers: Associate Professor Alma Džubur-Kulenović, MD PhD; Assistant Professor Amra Memić-Serdarević, MD PhD			
1. Overall aim	To teach medical students the following: <ul style="list-style-type: none">• Basic psychopathology• Approach to and communication with mentally ill persons• Psychiatric interview and mental state examination• Clinical presentation, epidemiology, etiology, pathophysiology, differential diagnosis of psychiatric disorders• Treatment modalities in psychiatry• Creating treatment plan• Organization of mental health services across the health system (deinstitutionalization)• Mental health stigma• Mental health legislation in the service of the protection of human rights of the mentally ill persons.		
2. Course contents	<p>Through lectures from the course the student will adopt the following knowledge:</p> <p>Module 1. Psychiatry and psychopathology The aim of this Module is to introduce the students with the history of psychiatry as a medical discipline, specifics of psychiatric interviewing and mental status examination and psychopathology.</p> <p>Module 2. Organic and symptomatic psychiatric disorders. Mental health disorders due to alcohol and psychoactive substance abuse. The aim of this Module is to introduce medical students to Organic and symptomatic psychiatric disorders, their classification, clinical presentation, etiology, diagnosis, differential diagnosis and principles of treatment. To introduce medical students to alcohol and PAS abuse and addiction disorders, their classification, clinical presentation, etiology, diagnosis, differential diagnosis and principles of treatment.</p> <p>Module 3. Schizophrenia, Schizotypal disorder. Delusional disorder. Affective (mood) disorders. The aim of this Module is to introduce medical students to psychotic disorders, their classification, clinical presentation, etiology, diagnosis, differential diagnosis and principles of treatment. To introduce medical students to affective (mood) disorders, their classification, clinical presentation, etiology, diagnosis, differential diagnosis and principles of treatment.</p> <p>Module 4. Anxiety disorders and Stress related disorders. Somatoform disorders. Acute stress disorder. Adjustment disorder. The aim of this Module is to introduce medical students to anxiety and stress related disorders, their classification, clinical presentation, etiology, diagnosis, differential diagnosis and principles of treatment.</p>		

	<p>Module 5. Child and adolescent psychiatry. Personality disorders. Intellectual disability. The aim of this Module is to introduce medical students to psychiatric disorders occurring in infancy and adolescence, to the specifics of psychiatric examination of this group of patients and the importance of early detection and treatment of major psychiatric disorders thus improving the treatment outcome particularly in terms of successful rehabilitation and resocialization. To introduce students to personality disorders, their classification, diagnosis and differential diagnosis as well as to principles of treatment, and also to introduce students to disorders characterized with general learning disability/intellectual disability.</p> <p>Module 6. Treatment in psychiatry. Psychiatric emergencies. Forensic psychiatry. Organization of mental health services in the community. The aim of this Module is to introduce medical students to modern treatment modalities in psychiatry, pharmacological therapies, other biological (somatic) therapies, psychotherapies, sociotherapy, and occupational therapy. Through the Module students will also introduce to psychiatric emergencies, their clinical presentation, cause, and treatment algorithms, forensic psychiatry and its task in the legal procedure, as well as mental health legislation and its role in the protection of human rights of the mentally ill people. Organization of mental health services in the community will be presented and its goal to provide treatment to mentally ill people in their community, reducing hospitalization and particularly institutionalization, and providing a milieu for resocialization and professional rehabilitation therefore increasing the quality of life of the mentally ill persons.</p>
3. Learning outcomes: knowledge, skill and competences	<p>Upon successful completion of the course the student will be capable to use basic theoretical and practical knowledge in his/her future medical practice, establish a psychiatric diagnosis based on the existing psychiatric classifications, provide treatment and care to psychiatric patients on the primary health care level, use the biopsychosocial model in understanding of psychiatric disorders.</p> <p>Through participation and completion of this course the student will master the following skills:</p> <p><i>Skills that the student needs to be capable of performing (knows how he/she is doing):</i></p> <ul style="list-style-type: none"> • Take psychiatric history (from the patient and significant others) • Perform mental state examination and write the report • Recognize disorders of consciousness, perception, thought, mood, affect, attention, intelligence, volition and cognition. • Establish a physician-patient relationship with a psychiatric patient. <p><i>Skills that the student needs to be familiar with(to know how and when):</i></p> <ul style="list-style-type: none"> • Technique of the psychiatric interview • Perform mental state examination

	<ul style="list-style-type: none"> • Recognize the symptoms and establish a diagnosis of psychiatric disorders • Recommend adequate treatment options • Recognize side-effects of psychopharmacological agents. • Be able to use evaluation scales in psychiatry • Evaluate suicidal risk and take appropriate action. • Approach the aggressive patient. • Use the legal provisions for involuntary psychiatric admission. <p>Upon successful completion of the course the student will be able to adopt the following attitudes:</p> <ul style="list-style-type: none"> • to look upon the psychiatric patient as a biopsychosocial being and pay attention and validate all the etiological factors that can contribute to the development of a psychiatric disorder. • to use the knowledge and skills acquired through this course in fast and accurate diagnosis of mental health disorders, their early recognition and treatment with the emphasis on successful resocialization and rehabilitation.
4. Teaching methods	<p>- Lectures: 45 hours</p> <p>- Practical work : 45 hours</p>
5. Method of knowledge assessment and examination	<p>Methods of knowledge assessment Students' knowledge assessment will be conducted continuously during the course.</p> <p>Continuous knowledge assessment Continuous knowledge assessment includes two practical and two partial exams.</p> <p>Practical exam 1 Practical exam 1 evaluates psychiatric interview and examination skills that were learned through Modules 1, 2, and 3. Evaluation of the acquired skills is performed through defined tasks in the check list. A specific number of points is assigned to each task. Student can score a maximum of 20 points. A minimum of 11 points required to pass this exam. Points scored in this exam will be added to the final score.</p> <p>Partial exam 1 Partial exam 1 is a written exam. It evaluates knowledge acquired through Modules 1, 2, and 3. Student can score a maximum of 30 points. A minimum of 17 points required to pass this exam. Points scored in this exam will be added to the final score.</p> <p>Practical exam 2 Practical exam 2 evaluates psychiatric interview and examination skills that were learned through Modules 4, 5, and 6. Evaluation of the acquired skills is performed through defined tasks in the check list. A specific number of points is assigned to each task. Student can score a maximum of 20 points. A minimum of 11 points required to pass this exam. Points scored in this exam will be added to the final score.</p> <p>Partial exam 2 Partial exam 2 is a written exam. It evaluates knowledge acquired through Modules 4, 5, and 6. Student can score a maximum of 30 points.</p>

	<p>A minimum of 17 points required to pass this exam. Points scored in this exam will be added to the final score.</p> <p>Final exam Student is required to pass both practical exams before starting oral part of Final exam. If the student previously passed one partial exam, Final exam consists of 3 questions (one from each Module) from the respective partial exam. Each question weighs a maximum of 10 and a minimum of 5.5 points. A total of 17 points is required to pass the exam. If a student did not pass any of the partial exams, the Final exam consists of 6 questions (one from each Module). Each question weighs a maximum of 10 and a minimum of 5.5 points. A total of 34 points is required to pass the exam.</p> <p>Repeated and Remedial exam Repeated and Remedial exam will be conducted according to previously defined criteria for Final exam.</p> <p>Forming the final grade Final grade is defined by summing up all points earned for each type of knowledge testing.</p> <table><tr><th><i>Grade</i></th><th><i>Points</i></th><th><i>Grade description</i></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>	<i>Grade</i>	<i>Points</i>	<i>Grade description</i>	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. Literature	<p>Recommended:</p> <ul style="list-style-type: none">– Sadock B.J, Sadock V.A, Ruiz P. Kaplan & Sadock’s Concise Textbook of Clinical Psychiatry. Wolters Kruwer. 2017. <p>Additional literature:</p> <ul style="list-style-type: none">– Harrison P, Cowen P, Burns T, Fazel M. Shorter Oxford Textbook of Psychiatry, 7th edition. Oxford University Press. 2017.– Sadock B.J, Sadock V.A, Ruiz P. Kaplan & Sadock’s Concise Textbook of Clinical Psychiatry, 4th edition. Lippincott Williams & Wilkins. 2017.																					
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	<p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation time daily with all members of the Department.</p> <p>e-mail of the Head of Department: alma.dzubur@mf.unsa.ba</p>
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COURSE PLAN: PSYCHIATRY

Week 4.	Teaching method	Hours
Thursday	Lecture: History of Psychiatry Etiology and Classification of psychiatric disorders Psychological functions and their disorders Developmental psychology Doctor-Patient relationship in Psychiatry	3
	Practicum: <ul style="list-style-type: none"> • Examination of a psychiatric patient 	1
Friday	Lecture: Psychological functions and their disorders (Consciousness, attention, thought disorders, memory)	3
	Practicum: <ul style="list-style-type: none"> • Examination of a psychiatric patient • Psychiatric interview • Doctor-Patient relationship in Psychiatry 	3
Week 5.	Teaching method	Hours
Monday	Lecture: Psychological functions and their disorders (Perception, intelligence, mood, drives, volition)	3
	Practicum: <ul style="list-style-type: none"> • Consciousness, examination and disorders of • Attention, examination and disorders of • Thought, examination and disorders of • Memory, examination and disorders of • Use of Mini Mental State Examination (Folstein) Scale for the assessment of cognitive functions 	3
Tuesday	Lecture : Symptomatic and organic psychiatric disorders (dementias, delirium, organic hallucinations, organic catatonic disorder, organic delusional disorder, organic affective disorder, organic anxiety disorder, mild cognitive impairment)	3
	Practicum: <ul style="list-style-type: none"> • Perception, examination and disorders of • Intelligence, examination and disorders of • Mood and affect, examination and disorders of • Drives, examination and disorders of • Volition, examination and disorders of 	3

Wednesday	Lecture : Psychiatric disorders due to alcohol and PAS use, Classification of PAS, etiology, and modalities of treatment through detoxication, substitution and harm reduction programs. Rehabilitation and resocialization in addictology, dual diagnoses and their significance in differential Dx and treatment. Importance of preventative programs in addictology.	3
	Practicum: <ul style="list-style-type: none"> • Dementias: examination of the patient (or presentation of a clinical case), MMSE Scale use, description of symptoms, establishing a Dx, Tx. • Delirium: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Organic delusional disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Organic affective disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Mild cognitive impairment: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	3
Thursday	Lecture: Schizophrenia, Schizotypal personality disorder, Delusional disorder Acute transitory psychotic disorder	3
	Practicum: <ul style="list-style-type: none"> • Alcohol abuse: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. Opioid addiction: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx.	3
Friday	Lecture: Affective disorders (Manic episode, Bipolar Affective Disorder, Depressive episode, Persistent affective disorders)	3
	Practicum: <ul style="list-style-type: none"> • Schizophrenia: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Delusional disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Acute transitory psychotic disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	3
Week 6.	Teaching method	Hours

Monday	<p>Lecture: Anxiety Disorders</p> <p>Practicum : Practical exam 1</p> <p>Practicum :</p> <ul style="list-style-type: none"> • Manic episode: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Depressive episode: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Bipolar Affective Disorder : examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Persistent Affective disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	<p>2</p> <p>2</p> <p>2</p>
Tuesday	<p>Lecture: Stress related disorders</p> <p>Practicum:</p> <ul style="list-style-type: none"> • Panic Disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Generalized Anxiety Disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Phobic Disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Social Anxiety Disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Obsessive-Compulsive Disorder: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: Child and Adolescent Psychiatry. Sleep Disorders. Eating Disorders. Paraphilias.</p> <p>Practicum:</p> <ul style="list-style-type: none"> • Disorder of acute stress: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • PTSD: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Adjustment disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	<p>3</p> <p>3</p>

	<ul style="list-style-type: none"> • Dissociative disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Somatoform and somatization disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	
Thursday	Lecture: Personality Disorders Practicum: <ul style="list-style-type: none"> • Child and Adolescence psychiatric disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Eating Disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Disorders of sleep: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Paraphilias: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	3 3
Friday	Lecture: Partial exam 1 Practicum: <ul style="list-style-type: none"> • Personality Disorders: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. • Intellectual disability: examination of the patient (or presentation of a clinical case), description of symptoms, establishing a Dx, Tx. 	2 4
Week 7.	Teaching method	Hours
Monday	Lecture: Forensic psychiatry Stigma in psychiatry Mental health legislation Community mental health services organization Involuntary admission in psychiatry Practicum: <ul style="list-style-type: none"> • Clinical case presentation. Diminished responsibility, accountability, capacity • Involuntary admission in psychiatry, Clinical case presentation 	3 3
Tuesday	Lecture: Treatment modalities in psychiatry: biological treatment methods. Psychiatric emergencies. Practicum:	3 3

	<ul style="list-style-type: none"> • Treatment algorithms for pharmacological treatment of major psychiatric disorders (presentation) • Psychotherapies, Sociiotherapy 	
Wednesday	Lecture: Treatment modalities in psychiatry: Non-pharmacological modalities for treatment and rehabilitation in psychiatry.	3
	Practicum: <ul style="list-style-type: none"> • Treatment algorithms for pharmacological treatment of major psychiatric disorders (presentation) • Psychotherapies, Sociiotherapy 	3
Thursday	Partial exam 2	3
	Practical exam 2	3
Week 16.	Final Exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0803	Course title: INFECTIOUS DISEASES		
Level: clinical	Study year: IV	Semester: VIII	ECTS: 6
Status: obligatory	Total contact hours: 90		
Prerequisites:	According to the Study Regulation		
Lecturers:	Rusmir Baljić, MD PhD; Enra Lukovac, MD Msc ; Velida Mulabdić, MD		
1. Overall aim	<p>Student should acquire following knowledge:</p> <ul style="list-style-type: none"> • Causes of the infectious disease • The method of entering the causative agent • Pathways of infection spreading • Disease developing • Symptoms, signs and clinical manifestations of the disease • Principles of diagnostics, therapy and prophylaxis of infectious diseases. 		
2. Course contents	<p>Through lectures from the course the student will adopt the following knowledge:</p> <p>Module 1. Anti-infective therapy The goal of this module is to present available therapy for infectious diseases, their indications for use , misuse, side effects and way of administration.</p> <p>Module 2. Sepsis syndrome The goal of the module is to present etiology, pathogenesis, clinical forms, diagnosis and therapy of the sepsis.</p> <p>Module 3. The febrile patient The goal of the module is to present possible causes of unknown febrile condition (FUO), with an emphasis on infectious etiology.</p> <p>Module 4. Pulmonary infections The goal of the module is to present infectious diseases of the upper respiratory tract, etiology, pathogenesis, clinical picture, diagnosis, complications and therapy.</p> <p>Module 5. Ear, nose and throat infection The goal of the module is to present infectious diseases of the ear, nose and throat. Their etiology, pathogenesis, clinical picture, diagnosis, complications and therapy.</p> <p>Module 6. Central nervous system infections The goal of the module is to present infectious diseases of the central and peripheral nervous system, their causes, epidemiology, pathogenesis, clinical picture, and diagnostics, therapy and prophylaxis.</p> <p>Module 7. Cardiovascular infections, gastrointestinal and hepatobiliary infections The goal of the module is to present different clinical picture of cardiovascular, gastrointestinal and hepatobiliary infection depending on the etiology of the disease, their diagnosis, therapy and prophylaxis.</p> <p>Module 8. Genitourinary tract infections</p>		

	<p>The goal of the module is to present etiology, pathogenesis, clinical picture, diagnostic procedures, therapy and prophylaxis of the genitourinary tract infections.</p> <p>Module 9. HIV infection, sexually transmitted diseases (STD's) The goal of the module is to present etiology, pathogenesis, clinical picture, diagnostic procedures and therapy of the HIV infection and sexually transmitted diseases. Difference between HIV and AIDS.</p> <p>Module 10. Skin and soft tissue, bone and joint infections The goal of the module is to present skin and soft tissue, bone and joint infections, their pathogenesis, diagnostics, clinical pictures, and therapy.</p> <p>Module 11. Parasitic infections The goal of the module is to present etiologically and clinically different parasitosis, their clinical presentation, diagnosis, prognosis, therapy and prophylaxis.</p> <p>Module 12. Zoonotic infections The goal of the module is to present etiologically and clinically different zoonoses, their diagnosis, clinical presentation, prognosis and therapy.</p> <p>Module 13. Other viral diseases The goal of the module is to present viral infections that are not mentioned in other modules, their pathogenesis, clinical picture, diagnosis, therapy and prophylaxis.</p> <p>Module 14. Infections in immunocompromised host, bioterrorism. The goal of the module is to present etiologically and clinically different infections in immunocompromised host, diagnosis, clinical presentation, prognosis and therapy. Infectious agents that can be used in bioterrorism.</p>
3. Learning outcomes: knowledge, skill and competences	<p>After successfully completing the course, the student will be able to take a patient's history of illness and integrate the data with epidemiological data, carry out a specific clinical examination of the infectious patient, which implies a complete overview, and a coarse neurological examination, with knowledge of all physical examination methods, correctly select the necessary diagnostic procedures for the affected organ, correctly take samples for testing (swab, hemoculture, urinoculture and coproculture), evaluate the severity of the disease according to symptoms, determine the therapy, the need to report disease and isolate the infectious patient, adhere to the principles of prophylaxis in transferable diseases and know diagnostic methods in infectology.</p> <p><i>Through the course, the student will adopt the following skills:</i> The skills that a student needs to know practically perform:</p> <ul style="list-style-type: none"> • correctly take the infectious history and socio-epidemiological data • recognize signs and symptoms of infectious diseases using all physical examination methods • determine the working diagnosis • to plan laboratory testing and diagnostic procedures • administer therapy • predict the course of the disease. <p><i>Skills that a student needs to know:</i></p> <ul style="list-style-type: none"> • taking microbiological samples (swabs, hemoculture, coproculture, urinoculture)

	<ul style="list-style-type: none"> • lumbar puncture • percutaneous liver aspiration biopsy • interpretation of laboratory findings and inflammatory parameters, differential blood counts • interpretation of microbiological tests (hepatitis markers, serology, antibiograms etc.) <p>The student should adopt the following attitudes:</p> <ul style="list-style-type: none"> • The infectious patient is an emergent patient, in which the prompt diagnosis and adequate administration of the therapy results in healing, usually without a consequence. • The clinical picture is subject to major and rapid changes, and it is important to recognize the symptoms and clinical manifestations of infectious disease in time. • Prompt opening of the venous route, immediately after the measurement of vital parameters, and adequate hydration of patients are necessary in a large number of infectious diseases (sepsis, intoxication, alimentary dehydration, etc.). • In the infectology, targeted antibiotic therapy (according to the antibiogram) is carried out, except in severe patients when ex-juvantibus therapy is administered after the previously taken microbiological examination material.
4. Teaching methods	<p>- Lectures : 44 hours</p> <p>- Practical work: 46 hours</p>
5. Method of knowledge assessment and examination	<p>Students' knowledge check will be carried out continuously during the course.</p> <p>Continuous knowledge testing</p> <p>Within the envisaged number of hours, the following testing will be held:</p> <p>First Partial Exam: Practical Exam 1, Written Exam 1 (MCQ)</p> <p>Second Partial Exam: Practical Exam 2, Written Exam 2 (MCQ).</p> <p>Partial Exam 1:</p> <p>a) Practical Exam 1 involves assessing the acquired theoretical knowledge and practical skills made through modules (1,2,3,4,5,6). Evaluation of the acquired skills is done by fulfilling the tasks previously defined in the check list. The maximum number of points scored is 20. In order to pass a practical exam, the student must score a minimum of 11 points.</p> <p>b) Written exam 1 with 30 MCQ questions. Knowledge acquired through modules (1,2,3,4,5,6) will be examined. Each correct answer carries 1 point, a total of 30 points. A student must score at least 17 points in order to qualify for the exam.</p> <p>The score for the partial exam 1 is obtained by adding the points scored (a + b).</p> <p>Partial Exam 2:</p> <p>a) Practical Exam 2 involves assessing the acquired theoretical knowledge and practical skills made through modules (7,8,9,10,11,12,13). Evaluation of the acquired skills is done by fulfilling the tasks previously defined in the check list. The maximum number of points scored is 20. In order to pass a practical exam, the student must score a minimum of 11 points.</p> <p>b) Written exam 2 with 30 MCQ questions. Knowledge acquired through modules (7,8,9,10,11,12,13) will be examined. Each correct answer carries 1 point, a total of 30 points. A student must score at least 17 points in order to qualify for the exam.</p> <p>The score for the partial exam 2 is obtained by adding the points scored (a + b).</p>

	<p>Final Exam</p> <p>The final exam consists of a practical and written part of the exam for students who did not satisfy partial exams.</p> <p>The exam was organized according to the model of previous partial exams (practical and written part). The condition for entering the written part of the exam was previously passed the practical exam.</p> <p>Repeated and Remedial Exam</p> <p>Repeated and Remedial Exam are organised in the same way as the Final Exam.</p> <p>The number of points won, obtained through all forms of knowledge testing, is added and transferred into the final grade.</p> <table><tr><th><i>Grade</i></th><th><i>Points</i></th><th><i>Grade description</i></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>	<i>Grade</i>	<i>Points</i>	<i>Grade description</i>	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. Literature	<p>Recommended:</p> <ul style="list-style-type: none">– Southwick, Frederick. Infectious Diseases A Clinical Short Course 3rd edition. New York: McGraw-Hill Professional; 2013. <p>Additional:</p> <ul style="list-style-type: none">– Mandell, Douglas, Bennett. Principles and Practice of Infectious Diseases, 8th edition. Philadelphia: Elsevier; 2016.– Braunwald, E (Eds), Harrison's Principles of Internal Medicine, 17th Ed. New York: McGraw-Hill, 2008																					
7. Notice	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheaters in CCUS. The exercises will be realized at the Clinic for Infectious Diseases in the Clinical Center of the University of Sarajevo. Exercises can be attended only by students who have a valid sanitary booklet and a proper uniform. All forms of instruction are compulsory. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations for students will be held in the period from 13:00-14:00 each working day, with prior announcement to the lecturer at e-mail: rusmir.baljc@mf.unsa.ba</p>																					

COURSE PLAN: INFECTIOUS DISEASES

Week 7.	Teaching form	Hours
Friday	Lecture: Anti-infective therapy. Practical work: Initial exam of patient with suspect to infectious disease. Empiric therapy at admission to a clinic and for outpatients. Practical work in outpatient ambulance.	2 4
Week 8.	Teaching form	Hours
Monday	Lecture: The sepsis syndrome. Practical work: Clinical signs of patient with sepsis syndrome. Diagnosis of sepsis. Patients in Intensive Care Unit – clinical approach to diagnosis and treatment.	2 4
Tuesday	Lecture: The febrile patient Practical work: Physical exam in patients with fever of unknown origin (FUO) Diagnostic workup in FUO Laboratory, microbiological and immunological tests available for differential diagnosis of FUO. Treatment protocols for FUO.	2 4
Wednesday	Lecture: Pulmonary infections. Ear, nose and throat infections. Practical work: Physical exam in pneumonia. Clinical findings in bacterial and viral pneumonia. Chest X-ray and blood tests in diagnosis of pneumonia. Treatment of pneumonia according to cause. Physical examination of patients with suspicious ear, nose and throat infection. Use of radiology in diagnostics of ear, nose and throat infection. Differences in clinical findings regarding etiology of infection	2 4
Thursday	Lecture: Central Nervous System (CNS) Infections. Practical work: Physical examination of patients with central nervous system infection. Meningeal syndrome and meningeal signs. Lumbar puncture. Etiology of the CNS infections. Diagnosis and treatment.	2 4
Friday	Lecture: Cardiovascular infections, Gastrointestinal and hepatobiliary infections Practical work: Signs and symptoms of cardiovascular, gastrointestinal and hepatobiliary infections. Physical exam and diagnostic approach. Importance of radiological tests for definitive diagnosis. Therapeutic protocols.	2 4
Week 9.	Teaching form	Hours

Monday	Partial exam 1	2
	Practical exam 1	4
Tuesday	Lecture: Genitourinary tract infections	2
	Practical work: Physical examination of a patient with a urinary tract infection. Demonstration of taking of urine laboratory samples and analysis. Characteristics of radiological findings. Prevention of genitourinary tract infections. Demonstration of urinary catheter placement.	4
Wednesday	Lecture: HIV infection, sexually transmitted diseases (STDs)	2
	Practical work: Physical examination of a HIV/AIDS patient. Analysis of laboratory findings in HIV/AIDS patients. Tests to prove HIV. Stigmatization of HIV/AIDS. Therapy protocols. Clinical signs and symptoms of patients with sexually transmitted diseases (STDs). Sampling for microbiological analyses. Diagnosis and treatment of sexually transmitted diseases (STDs).	4
Thursday	Lecture: Skin and soft tissue, bone and joint infections.	2
	Practical work: Physical examination of a patient with skin and soft tissue infections. Importance of early diagnosis of necrotizing fasciitis. Diagnosis of bone and joint infections. Predisposing factors, causes and clinical manifestations. Infections in prosthetic joints. Treatment.	4
Friday	Lecture: Parasitic infections.	2
	Practical work: Clinical presentation of malaria. Microscopic analysis of blood smear. Clinical presentation of eishmaniasis. Symptoms and clinical signs of intestinal parasitosis, trichinosis, echinococcosis, cysticercosis, schistosomiasis and filariasis.	4
Week 10.	Teaching form	Hours
Monday	Lecture: Zoonotic infections	2
	Practical work: Physical examination of a patient with Brucellosis. Clinical manifestations and diagnosis of Lyme disease, Leptospirosis, Typhus, Q-fever and Cat scratch disease. Therapeutical protocols.	4
Tuesday	Lecture: Other viral diseases.	2
	Practical work: Epidemiology of virus infections. Laboratory characteristics in viral infections. Microbiological, serological and other viral infections tests. Clinical manifestations, diagnosis and therapy acute respiratory syndrome, influenza, herpes infections, varicella, EBV, hanta virus infections. Prophylaxis.	4

Wednesday	Lecture: Infections in immunocompromised host. Bioterrorism.	2
	Practical work: Classification of the immunocompromised host. Management of the neutropenic patient. Preventive measures in solid-organ and bone marrow transplant patients. Bioterrorism today in the world. Pathogenesis and the way of spreading anthrax, plague, tularemia and smallpox. Prophylaxis and treatment in case of bioterrorist attack.	4
Thursday	Partial exam 2	2
	Practical exam 2	4
Week 16.	Final exam	
Week 17-20.	Repeated exam and Remedial exam	

Code: MFSE 0804	Course title: RADIOLOGY		
Level: clinical	Study year: IV	Semester: VIII	ECTS: 4
Status: obligatory	Total contact hours: 70		
Prerequisites:	According to the Study Regulation		
Lecturers: Assistant Professor Amela Sofić, MD PhD; Ass. Fuad Zukić, MD. PhD			
1. Overall aim	Introducing students to the classical, digital and invasively-interventional procedures in radiology and their practical applications in contemporary medicine.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p>Module 1: Introduction to radiology Introducing the definition, division of radiology, the base of physics in RTG radiation, RTG apparatus, the principles of radiography, radioscopy and the formation of the RTG image.</p> <p>Module 2: Radiological methods Introduction to the methods of work, application of classical native and contrast radiological methods as well as digital radiological methods: Computerized tomography (CT), Magnetic resonance (MRI), Ultrasound (UZ). Introduction to the radiological information system (RSI) and the information system for digital storage of images (PACs).</p> <p>Module 3: Basis for interventional and therapeutical procedures in radiology Acquiring basic knowledge on diagnostic and therapeutical interventional radiology. Acquiring basic knowledge on vascular and nonvascular interventional procedures. Acquiring knowledge on personal and staff protection from radioactive radiation applied in radiology.</p> <p>Module 4: Radiological methods according to organ systems Acquiring the radiological procedures in diagnostics: the central nervous system, respiratory system, cardiovascular system, digestive system, hepatobiliary system, urogenital system, musculoskeletal system, breast diagnostics and children radiology.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>Students will acquire knowledge necessary for understanding the role of nuclear medicine in clinical setting that will make their initial clinical experiences more meaningful and will be basis for their future independent work. They will learn indications for nuclear medicine procedures and will be able to distinguish correct procedures and scintigraphy patterns.</p> <p>Students will learn nuclear medicine procedures with emphasis on practical applications and will have the opportunity to indentify procedures of nuclear medicine in the diagnostic algorithm.</p> <p>Through practical work the student will become familiar with work of gamma cameras and with hybrid system PET/CT machine and protocols for radionuclide therapy.</p> <p><i>Through the lectures and practical work the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none">1. Know the principles of gamma cameras, radiopharmaceuticals, SPECT and PET/CT.2. Understand diagnostic procedures in thyroid diseases and skeletal scintigraphy.3. Know indications and protocols in heart and lung diseases diagnostic procedures.		

	<p>4. Know indications for static and dynamic scintigraphy.</p> <p>5. Develop a basic understanding of scintigraphy of hepatobiliary and diagnostic.</p> <p>6. Discover nuclear medicine imaging in neurology, psychiatry, oncology, SNL and PET/CT procedure.</p> <p>7. Understand and learn the treatment with I¹³¹ for thyroid differentiated carcinoma, treatment with MIBG in pediatric oncology, palliative radionuclide therapy of bone metastatic disease.</p> <p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"> - Instruction of patients about preparation for nuclear medicine procedures - Calculation of single doses for administration - Distinguishing different types of collimators, pinhole collimator - Analysis and inteipretation of different examination (thyroid, bone, kidneys: dynamic and static renal scintigraphy, hepatobiliary scintigraphy, Meckel's diverticulitis, SLN, scintigraphy of somatostatin receptors) - Interpretation of SPECT, PET/CT acquisition - Identification of indications for PET/CT - Demonstration of specific parts of PET/CT, fusion of images
4. Teaching methods	<p>Lectures: 33 hours,</p> <p>Practical work: 35 hours</p>
5. Method of knowledge assessment and examination	<p>The course is designed to be a continuous assessment and examination of knowledge throughout the semester.</p> <p>Partial exam 1 Partial exam 1 covers the assessment of knowledge throughout Module 1 and 2. This exam consists of 40 MCQ, and each correct answer is 1 point. The total score is 40. The passing score is 22 points.</p> <p>Partial exam 2 Partial exam 2 covers the assessment of knowledge throughout Module 3 and 4. This exam is a written test consisting of 40 MCQs. Each correct answer is 1 point. The total score is 40. The passing score is 22 points.</p> <p>Practical exam Practical exam is the assessment of the knowledge throughout acquired during the practical classes. During this assessment of knowledge students should show their knowledge based on 5 radiological scans, each carrying 4 points. The total number of points at the practical exam is 20. The minimal passing points are 11.</p> <p>Final exam Students that have not reached the passing grade points at each assessment point during the course will take the Final exam. Final exam will be in written form and it consists of two separate tests that correspond to the materials of Partial tests that student has not passed during the course.</p> <p>Repeated and Remedial exam Repeated and Remedial exama are conducted according to previously defined criteria of the final examination.</p> <p>Final grade The total number of points, gathered through the assessment check points will be translated into the final grade as follows:</p>

	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
6. Literature	Obligatory: – Gunderman RB. Essential Radiology, Clinical Presentation, Pathophysiology, Imaging. Third edition. New York: Thieme Medical Publisher, Inc., 2014. Additional: – Richardson M. Fundamentals of Diagnostic Radiology. Baltimor:Williams&Wilkins, 2003.		
7. Remark	Lectures will be conducted according to the Plan and the Curriculum at the Amphitheaters in CCUS. The exercises will be realized at the Clinic for Radiology in the Clinical Center of the University of Sarajevo. Exercises can be attended only by students who have a valid sanitary booklet and a proper uniform. All forms of instruction are compulsory. Fixing absences from classes is in accordance with applicable legal regulations. Consultations for students will be held in the period from 13:00-14:00 each working day, with prior announcement to the lecturer.		

PLAN OF SUBJECT: RADIOLOGY

Week 10.	The form of teaching	Number of hours
Friday	Lecture: Introduction to radiology. History, division, importance and place of radiology, basic physics of RTG radiation, radiological apparatus.	3
	Exercises: Getting to know the radiological apparatus.	3
Week 11.	The form of teaching	Number of hours
Monday	Lecture: Conventional (classical) RTG procedures. Radiography, radioscopy, origin and features of RTG images, contrasting and non-contaminated RTG procedures, contrast agents, basics of RTG image analysis.	3
	Exercises: Getting acquainted with the technique of obtaining RTG images, performing contrary and non-contrast RTG procedures and applying contrast agents.	3
Tuesday	Lecture: Digitization in radiology. Basics of digital picture generation, Radiological Information System (RIS), Digital Image Stabilization System (PACS), Teleradiology.	3
	Exercises: Getting acquainted with the use of RIS and PACS.	3
Wednesday	Lecture: Ultrasound. Basic physics of ultrasound waves, principles of operation and application of ultrasound apparatus, indications, preparation, basics of analysis ultrasound images.	3
	Exercises: Introducing ultrasound examination.	3
Thursday	Lecture: Computerized tomography - CT. Principle of operation and application of CT apparatus, obtaining ct image, indication, preparation for examination, basics of CT image analysis.	3
	Exercises: Getting to know CT scan.	3
Friday	Lecture: Magnetic resonance –MRI. Basic physics of magnetic radiation, work principle and application of MRI apparatus, indications, preparation for examination, basics of analysis of MRI images.	3
	Exercises: Getting to know MRI.	3
Week 12.	The form of teaching	Number of hours

Monday	Lecture: Radiation protection. Radiation effects, dosimetry, modern radiation protection devices, radiation protection legislation for professional staff, patients and the population.	3
	Exercises: Presentation of means and methods of radiation protection.	3
Tuesday	Lecture: Partial exam 1	1
	Lecture: Radiology of the central nervous system, respiratory, cardiovascular system and breast. Radiological methods and their application in the central nervous system, respiratory, cardiovascular system and breast.	2
	Exercises: Introduction to radiological methods of the central nervous system, methods of respiratory and cardiovascular system. Getting acquainted with radiological methods of the central nervous system, the methods of respiratory and cardiovascular system.	2
Wednesday	Lecture: Radiology of hepatobiliary and digestive system and urogenital system Radiological methods and their application in hepatobiliary and digestive systems.	3
	Exercises: Introduction to radiological methods of hepatobiliary, digestive system and urogenital system.	3
Thursday	Lecture: Radiology of musculoskeletal system and child radiology. Radiological methods and their application in the musculoskeletal system and in children's radiology.	3
	Exercises: Getting to know the radiological methods used in child radiology and breast cancer diagnosis.	3
Friday	Lecture: Intervention procedures. Vascular, non-vascular, diagnostic, therapeutic intervention procedures, indications, preparation, treatment of patients after interventional procedures.	3
	Exercises: Introduction to interventional radiological methods.	3
Week 13.	The form of teaching	Number of hours
Monday	Lecture: Partial exam 2	2
	Exercises: Practical exam	3
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0805	Course title: DERMATOVENEROLOGY		
Level: clinical	Study year: IV	Semester: VIII	ECTS: 5
Status: obligatory	Total contact hours: 60		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Asja Prohić, MD PhD; Associate professor Emina Kasumagić-Halilović, MD PhD; Assistant professor Nermina Ovčina-Kurtović, MD PhD			
1. Overall aim	The overall aim of Dermatovenereology course is to introduce students with: - Etiology, pathogenesis and clinical picture of the most common diseases of the skin and mucous membranes - Tumors of the skin and mucous membranes - Sexually transmitted diseases - Diagnostics of the most common skin diseases and - Therapeutic options in dermatovenereology		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Structure and function of the skin. Immunology skin. The goal of the module is to introduce students to the structure and functions of skin, skin immunology, taking a history, terminology of skin lesions, principles of dermatological diagnostics, and basic principles of general, local and physical dermatological therapy.</p> <p>Module 2. Skin infections: bacterial, viral, fungal, parasitic. The goal of the module is to introduce a student with skin infection diseases - bacterial, viral, fungal and parasitic infections.</p> <p>Module 3. Mechanical, chemical and physical damage of the skin and mucous membranes The module aims to introduce a student with skin damage caused by mechanical, chemical, thermal factors, ionizing and ultraviolet radiation.</p> <p>Module 4. Allergic skin diseases The goal of the module is to introduce a student with allergic skin diseases: urticaria, angioedema, hypersensitivity to insect bites, anaphylactic shock, drug reactions, dermatitis and eczema.</p> <p>Module 5. Papulosquamous diseases and erythroderma The goal of the module is to introduce a student with erythematous diseases: psoriasis, parapsoriasis, lichen, erythrodermia.</p> <p>Module 6. Autoimmune diseases The goal of the module is to introduce a student with autoimmune diseases of the skin: autoimmune bullous dermatoses, scleroderma, lupus erythematosus, dermatomyositis.</p> <p>Module 7. Inherited disorders The goal of the module is to introduce a student with hereditary skin diseases: inherited disorders of keratinization and bullous epidermolysis.</p> <p>Module 8. Pigmentation disorders and diseases of the skin adnexa The goal of the module is to introduce a student with skin pigmentation disorders (hyperpigmentation and hypopigmentation) as well as disorders of skin appendages (sebaceous glands, hair and nails).</p>		

	<p>Module 9. Skin Tumors The goal of the module is to introduce a student with skin tumors (benign skin tumors, precanceroses, malignant skin tumors and lymphomas).</p> <p>Module 10. Sexually transmitted diseases The goal of the module is to introduce a student with sexually transmitted diseases.</p>
<p>3. Learning outcomes (Knowledge, skills and competences)</p>	<p>Students will acquire knowledge necessary to recognize, describe, explain and evaluate common symptoms and signs of skin diseases and sexually transmitted diseases. They will be able to manage independently and efficiently all medical emergencies related with skin and to adopt preventive measures at individual and community levels against communicable skin. Students will also be able to teach requisite knowledge and laboratory skills to other medical team members and to critically evaluate and initiate investigation for solving problems relating to skin.</p> <p><i>Through the lectures the students will acquire the following knowledge and competences:</i></p> <ol style="list-style-type: none"> 1. Learn structure and function of the skin, skin adnexa, immunology skin, anamnesis of dermatovenereological patients, efflorescence, the basic principles of dermatologic diagnosis and the basic principles of topical, systemic, physical and surgical dermatological therapy. 2. Familiar with diseases of the skin caused by external factors infectious nature (bacterial, viral, fungal and parasitic). 3. Familiar with skin damage caused by mechanical, chemical, thermal factors, ionizing and ultraviolet radiation. 4. Learn allergic diseases: urticaria, angioedema, hypersensitivity to insect stings, anaphylactic shock, adverse drug reactions, dermatitis and eczema. 5. Develop a basic understanding of papulosquamous disorders: psoriasis, parapsoriasis, lichen and erythroderma. 6. Learn the basics of autoimmune diseases of the skin: autoimmune bullous diseases (pemphigus and pemphigoid group), scleroderma, erythematosus, dermatomyositis. 7. Learn about hereditary skin diseases: hereditary disorders of keratinization and epidermolysis bullosa. 8. Develop a basic understanding of disorders of skin pigmentation (hyperpigmentation and hypopigmentation), as well as diseases of the skin adnexa (sebaceous glands, hair and nails). 9. Learn benign skin tumors, precancerous lesions, malignant skin tumors and lymphomas. 10. Know the ways of transmitting, clinical pictures and treatment of venereal disease. <p><i>Through the practical work students will acquire the following skills:</i></p> <ul style="list-style-type: none"> - Take anamnesis - Diagnostic methods in allergology: prick test, intradermal test, patch test, procedures and elimination of exposure test in acute nutritive urticaria. - The diagnostic methods for bacterial diseases: vitropresion, test probe, punctuation and incision of furunculi. - Diagnostic methods in fungal diseases: taking material for native preparation and culture. - Diagnostics methods in parasitic diseases: taking material and interpretation of the results in scabies and Demodex folliculorum.

	<ul style="list-style-type: none"> - Autoimmune diseases of the skin: laboratory diagnostic tests at erythematosus, scleroderma, dermatomyositis, autoimmune bullous diseases (Nikolsky's sign, Tzanck test, direct and indirect immunofluorescence). - Skin tumors: taking a biopsy and histopathological interpretation, to differentiate pigmented and non-pigmented lesions on dermoscopy.
4. Teaching methods	<p>Lectures: 30 hours</p> <p>Practical work: 30 hours</p>
5. Method of knowledge assessment and examination	<p>Continuous knowledge and skills assessment will be carried out through Partial exam 1, Partial Exam 2, and Practical Exam.</p> <p>Partial exam 1</p> <p>It covers the assessment of knowledge passed through modules 1, 2, 3, 4 and 5 in the form of an MCQ test with 20 questions and in a form of an oral examination of knowledge based on 3 selected exam questions printed on the test card. Each correct answer to the MCQ question is 1 point, and every correct answer to the question is scored with a maximum of 5 points. The maximum number of points that the student can obtain at the Partial exam 1 is 35 points.</p> <p>The student must gain at least 19 points to be considered passed the Partial exam 1. The awarded number of points is added to the other points when forming the final grade.</p> <p>Partial exam 2</p> <p>It covers the examination of knowledge passed through modules 6, 7, 8, 9 and 10 in the form of an MCQ test with 20 questions and in a form of an oral examination of knowledge based on 3 selected exam questions printed on the test card. Each correct answer to the MCQ question is 1 point, and every correct answer to the question is scored with a maximum of 5 points. The maximum number of points that the student can obtain at the Partial exam 2 is 35 points.</p> <p>The student must gain at least 19 points to be considered passed the Partial exam 2. The awarded number of points is added to the other points when forming the final grade.</p> <p>Practical Exam</p> <p>Practical Exam entails assessing the acquired skills during the course (taking anamnesis and local dermatological examination of the patients) processed through all the modules. Evaluation of the adopted skills will be accomplished through the fulfillment of the tasks defined in the checklist. Each task carries the appropriate number of points. The total number of points a student can earn is 30. Practical exam will be considered passed if the student wins at least 17 points. The awarded number of points is added to the other points when forming the final grade.</p> <p>Final exam</p> <p>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 Final exam.</p> <p>Final exam is conducted and evaluated according to predefined methods of knowledge checking.</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>Forming a final grade</p> <p>The total number of points won on all forms of knowledge 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">– Goldsmith L, Katz S, Gilchrest B, Paller A, Leffell D, Wolff K. Fitzpatrick TB (editors). Fitzpatrick's Dermatology in General Medicine 8th Edition, 2012.– Burgdorf W, Plewig G, Wolff HH, Landthaler M. (Eds.) Braun-Falco's Dermatology, 3rd. Berlin-Heidelberg: Springer, 2009. <p>Additional:</p> <ul style="list-style-type: none">– Prohić A. Dermatovenerologija – udžbenik i atlas. Sarajevo:Medicinski fakultet Univerziteta u Sarajevu, 2018. (for students with knowledge of Bosnian language).																					
7. Remark	<p>Lectures will be conducted according to the Plan and the curriculum at the Amphitheatres in CCUS. The exercises will be realized at the Clinic for Dermatovenerology 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 any working day pre-reserved with Head of Cathedra: asja.prohic@mf.unsa.ba</p>																					

PLAN OF SUBJECT: DERMATOVENEROLOGY

Week 13.	Form of teaching	Hours
Tuesday	Lecture: Introduction to dermatology. Structure and function of the skin. Immunology of the skin. Skin reactions of hypersensitivity. Terminology of skin lesions. Diagnosis and therapy of dermatological diseases - general principles.	3
	Practical work: Terminology of skin lesions. History taking in dermatology. Examining the skin. Practical skin procedures. Basic principles of dermatological diagnostics. Basic principles of dermatological therapy: topical, systemic, surgical and physical therapy.	3
Wednesday	Lecture: Bacterial skin infections - staphylococcal and streptococcal infections, corynebacterial infections, mycobacterial infections. Viral skin infections - herpes simplex and varicella zoster virus infections, human papillomavirus infections, cutaneous manifestations of human immunodeficiency virus.	3
	Practical work: Introducing students with skin diseases caused by external infectious agents: bacterial and viral. Demonstration of sampling for bacteriological analysis. The diagnostic methods for bacterial diseases: vitropresion, Gram staining and culture of pus or exudates, punctuation and incision of furunculi. Basic principles of diagnosis of viral skin infections.	3
Thursday	Lecture: Fungal skin infections – dermatophytoses and candidiasis. Parasitic skin infections – scabies and pediculosis. Tropical skin diseases.	3
	Practical work: Introducing students with skin diseases caused by infectious agents: fungal and parasitic agents. Diagnostic methods in fungal diseases: taking material for native preparation and culture. Diagnostics methods in parasitic diseases: taking material and interpretation of the results in scabies.	3
Friday	Lecture: Allergic skin diseases. Urticaria, serum disease, angioedema, hypersensitivity to insect bites, anaphylactic shock, adverse drug reactions. Dermatitis and eczemas: contact allergic and nonallergic dermatitis. Atopic dermatitis.	3
	Practical work: Presentation of patients with allergic skin diseases. Demonstration of allergic testing: prick test, scratch test, intradermal and epicutaneous tests, drug exposure, physical tests.	3
Week 14.	Form of teaching	Hours
Monday	Lecture: Papulosquamous diseases: psoriasis, parapsoriasis, lichen group, erythroderma. Inherited disorders: keratinization and blistering disorders.	3
	Practical work: Presentation of patients with disorders of keratinization. Presentation of patients with various clinical forms of psoriasis. Demonstrating phenomena related to psoriasis. Demonstrating local therapy in psoriasis.	3

Tuesday	Lecture: Partial exam 1	2
	Lecture: Erythromosqual diseases: psoriasis, parapsoriasis, lichen, erythroderma.	2
	Practical work: Present patients with various clinical forms of psoriasis. Demonstrate phenomena related to psoriasis. Show psoriasis therapy. Show patients with lichens. To introduce a patient with erythroderma of different etiologies.	2
Wednesday	Lecture: Autoimmune skin diseases: Blistering disorders. Connective tissue diseases.	3
	Practical work: Laboratory diagnostic tests at erythematosus, scleroderma, dermatomyositis, autoimmune bullous diseases (Nikolsky's sign, Tzanck test, direct and indirect immunofluorescence).	3
Thursday	Lecture: Diseases of the skin adnexa - sebaceous and sweat glands, disorders of hair and nails. Pigmentation disorders. Mechanical, chemical and physical damage of the skin and mucous membranes.	3
	Practical work: Presentation of patients with sebaceous and sweat gland disorders. Presentation of patients with hair and nail disorders. Demonstration of basic characteristics of trihograms and trichoscans. Presentation of patients with skin pigmentation, photosensitivity.	3
Friday	Lecture: Skin tumours. Sexually transmitted diseases.	3
	Practical work: Demonstration of biopsy and histopathological interpretation in skin tumors. Basic concepts of dermoscopy. Demonstration of sample taking in sexually transmitted diseases.	3
Week 15.	Form of teaching	Hours
	Partial exam 2	2
	Practical exam	4
Week 16.	Final exam	
Week 17-20.	Repeated and Remedial exam	

Code: MFSE 0806	Course title: CHRONIC KIDNEY DISEASE		
Level: clinical	Study year: IV	Semester: VIII	ECTS credit: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturer: Professor Halim Resić, MD PhD; Amela Bećiragić, MD PhD; Aida Ćorić, MD			
1. Overall aim	<ul style="list-style-type: none">- Acquiring skills and knowledge of chronic kidney disease (CKD)- Recognising symptoms of CKD, diagnostics and treatment of different types of CKD- Understanding of diagnostic algorithms and therapeutic methods- Understanding the basic principles of hemodialysis and different types of dialysis		
2. Course contents	<p>Through the lectures students will gain following knowledge:</p> <p>Module 1. Etiology and pathogenesis of CKD Aim of this Module is increasing students knowledge about the latest findings in pathophysiological mechanisms of CKD (albuminuria and proteinuria, markers of kidney and cardiovascular diseases, obesity, smoking, growth factors).</p> <p>Module 2. Diagnosis of kidney diseases, interpretation of laboratory findings Aim of this Module is increasing students knowledge of tests for kidney function assessment, estimated glomerular filtration rate (eGFR), equations for predicting eGFR, creatinine clearance. Evidence of kidney injury, proteinuria, microalbuminuria, hematuria and structural abnormalities, latest classification of CKD.</p> <p>Module 3. Conservative treatment and delaying CKD progression Introduction to the risk factors for CKD progression and the importance of controlling blood pressure, glycemia, body wight and physical activity in prevention of CKD. Introduction to the treatment algorithm for CKD.</p> <p>Module 4. Renal replacement therapy (dialysis) Aim of this Module is increasing students knowledge about physicochemical principles of hemodialysis and peritoneal dialysis, advantages and disadvantages.</p> <p>Module 5. Hemodialysis in elderly patients Aim of this Module is increasing students knowledge about the possibilities of dialysing patients above 75 years of age, acute and chronic complications of such dialysis treatment, with special review of dialysing patients with diabetic nephropathy.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through practical work on the Clinic students will gain following skills:</i></p> <p>Students should be able to <i>practically perform next skills:</i></p> <ul style="list-style-type: none">- taking anamnesis and clinical examination of patient with CKD- interpretation of kidney function assessment and doing screening for CKD- calculating eGFR- giving recommendations for CKD follow up- using the CKD treatment algorithms <p>Skills that students should <i>know how and when:</i></p>		

	- when and how to start patient on dialysis.																					
4. Teaching methods	Lectures: 10 hours Practical work: 10 hours																					
5. Methods of knowledge assessment and examination	<p>Knowledge assessment will be performed throughout the course. Continuous knowledge assessment includes continuous checking of acquired skills on Practical exam and knowledge on Partial exam.</p> <p>Practical exam Practical exam consists of two tests of acquired skills defined in check list. The student can win a maximum of 40 points. Minimum number of points for passing exam is 22.</p> <p>Partial exam Partial exam is in a form of 30 MCQs (multiple choice questions). Knowledge of all modules will be tested. Each correct answer is worth 2 points. At least 33 points is required for passing this test.</p> <p>Final exam If the student failed to pass Practical exam on the end of the course, evaluation of acquired skills will be done on Final exam through fulfilling assignments defined in check list. If the student failed to pass Partial exam on the end of the course, or if he/she is unsatisfied with the mark, theoretical part will be passed within Final exam. Student is required to pass Practical exam in order to take written part of the exam. Final exam will be carried out and graded according to previously defined methods of knowledge assessment.</p> <p>Repeated and Remedial exam If the student failed to pass through continuous knowledge assessment and taking the Final exam, he/she takes Repeated and Remedial exam. This means that the student is tested in parts of the exam he/she previously failed. It is required to pass Practical exam in order to take written part of the exam. Methods and grading is the same as in Final exam.</p> <p>Forming the final mark The final mark is formed by adding together all points student got during the course.</p> <table><tr><th><i>Mark</i></th><th><i>Number of points</i></th><th><i>Grade description</i></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>< 54</td><td>Does not meet the minimum requirements</td></tr></table>	<i>Mark</i>	<i>Number of 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)	< 54	Does not meet the minimum requirements
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6. Literature	<p>Recommended:</p> <ul style="list-style-type: none"> – Daugirdas JT, Blake PG, Ing TS. Handbook of dialysis, 4th ed. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins; 2014. <p>Additional</p> <ul style="list-style-type: none"> – Resić H, Mešić E, Kukavica N, Alečković M. Klinički aspekti hemodijalize. Sarajevo: University press; 2014. – Mešić E, Resić H. Bazični principi hemodijalize. Tuzla: Printcom; 2000.
7. Remark	<p>All forms of teaching are mandatory. Lectures and practical exercises are held at the Clinical Center University of Sarajevo. 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. Consultation hours for students are every working day from 12 do 14 hours, upon agreement with the responsible teacher or by mail: halima.resic@mf.unsa.ba</p>

PLAN OF SUBJECT: CHRONIC KIDNEY DISEASE

Week 15.	Form of teaching	Number of hours
Tuesday	Lecture: Etiology and pathogenesis of CKD. Diagnosis of kidney diseases, interpretation of laboratory findings.	3
	Practice: Approach to the patient with CKD, taking anamnesis and clinical examination of such patient. Tests for measuring kidney function and laboratory findings interpretation. Algorithm for treating CKD and delaying CKD progression.	3
Wednesday	Lecture: Conservative treatment and delaying CKD progression.	2
	Practice: Education of patients, renal diet, correction of drug doses in CKD.	2
Thursday	Lecture: Renal replacement therapy (dialysis). Acute and chronic complications of dialysis.	3
	Practice: Beginning, course and the end of dialysis treatment. Following complications of dialysis treatment in elderly and therapeutic treatment success.	3
Friday	Practical exam	2
	Parial exam	2
Week 16.	Final exam	
Week 17-20.	Repeated and Remedial exam	

Code: MFSE 0807	Course title: CLINICAL NEUROPHYSIOLOGY		
Level: clinical	Study year: IV	Semester: VIII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Mehmedika-Suljić, MD PhD; Senad Drnda, MD PhD; Admir Mehićević, MD MSc			
1. Overall aim	<p>The overall aim of the course in Neurophysiology is to adopt</p> <ul style="list-style-type: none"> - basic neurophysiological principles and methods in clinical neurophysiology - correct planning of diagnostic program in relation to the differential diagnosis of the disease. - adequate interpretation and use of findings obtained from clinical neuropsychologist, and acting in accordance with the findings in setting the final diagnosis. 		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Basics of electrodiagnostic The aim of the Module is to introduce students to basic electrodiagnostics in neurology and to basic parts of apparatus, work principles and abilities.</p> <p>Module 2. Fundamentals of electroencephalography (EEG) The aim of the Module is to introduce students to basic electroencephalograph, diagnostic possibilities and restrictions of the method, as well as to way of EEG findings interpretation.</p> <p>Module 3. Basics of electromyoneurography (EMG) The aim of the Module is to introduce students to diagnostic abilities of electromyography, way of findings interpretation and application of research results.</p> <p>Module 4. Fundamentals of evoked potentials (VEP, AEP, SSEP) The aim of the Module is to introduce students to types of evoked potentials and abilities of the method, to indication areas and limitations, and the way of findings interpretation.</p>		
3. Learning outcomes	<p>Students will acquire knowledge needed to correctly plan the diagnostic program, adequately interpret findings obtained from clinical neurophysiologist and follow-up the patients.</p> <p><i>Through the lectures and seminars the students will gain the following knowledge and competences:</i></p> <ul style="list-style-type: none"> - Acquire basic theoretical knowledge in the field of clinical neurophysiology; - The basics of practical work, learn how to use neurophysiological methods in the evaluation of the success of therapeutic procedures and processes; - Learn how to use neurophysiological methods in the assessment of work capacity and forensic cases. <p><i>Through the practical laboratory work students will acquire the following skills:</i></p> <ol style="list-style-type: none"> 1. Correct data entry. 2. Correctly place EEG cap and measure the resistance. 3. Properly position the electrodes for measuring motor and sensory conduction, master calculating conduction velocity. 4. Learn how to correctly set up electrodes to measure evoked potentials. 5. Cleaning and sterilization of the equipment. 		

4. Teaching methods	Lectures: 10 hours Practical work: 10 hours																					
5. Method of knowledge assessment	<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 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 Practicalexam and Partial exam, he/she will take up the failed parts at the Final exam, with evaluation and criteria identical to those applied in practical and partial exams. Only students who have passed the overall Practical exam may enter the written part 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>Grade is defined by summing up all credits earned for each type of knowledge testing.</p> <table><tr><th>Grade</th><th>Number of credits</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>< 54</td><td>Does not meet the minimum requirements</td></tr></table>	Grade	Number of credits	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)	< 54	Does not meet the minimum requirements
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6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">– Daube&Rubin. Clinical Neurophysiology, 3rd edition. Oxford University Press, 2009. <p>Additional:</p> <ul style="list-style-type: none">– Nunez PL, Srinivasen R. Electric Fields of the Brain: The Neurophysics of EEG. Oxford University Press; 2006.																					

	<p>– Kimura J. Lector diagnosis in Disease of Nerve and Muscle: Principles and Practice. Oxford University Press; 2013.</p>
7. Note	<p>All forms of teaching are mandatory. Lectures and practical trainings are carried out in accordance with the course implementing plan of the Neurology Department. Number of students per assistant is between 5 and 8 (ideally 6). Exercises can be attended only by students who have a valid sanitary booklet and a proper uniform. Distribution of students in groups will be displayed at notice board of the CCUS Medical Faculty Hall. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is any working day pre-reserved with the Head of the Department of Neurology: enra.suljic@mf.unsa.ba.</p>

COURSE PLAN: CLINICAL NEUROPHYSIOLOGY

Week 15.	Form of teaching and teaching materials	Number of hours
Tuesday	Lecture: Neuroanatomy and Neurophysiology. Basics of electrodiagnostics and apparatus.	3
	Practical training: Taking anamnesis and basic neurological examination. Basics in nerve conduction. Proper data entry. Taking anamnesis and basic neurological examination. Basics in nerve conduction.	3
Wednesday	Lecture: Basics of electroencephalography (EEG)	2
	Practical training: Correct placement of EEG cap and resistance measurement. Introduction to basic installation, their advantages and flows.	2
Thursday	Lecture: Basics of electromyography (EMNG). Basics of evoked potentials (VEP, AEP, SSEP).	3
	Practical training: Proper positioning of electrodes for measuring motor and sensory conductivity. Master the calculation of speed conductivity. Introduction to basic needle electrodiagnostic testing. Learn to correctly place electrodes for evoked potentials measuring. Equipment maintenance and sterilization.	3
Friday	Practical exam	2
	Partial exam	2
Week 16.	Final exam	
Week 17 – 20.	Repeated and Remedial exam	

Code: MFSE 0812	Subject title: NEUROSONOLOGY		
Level: clinical	Year: IV	Semester: VIII	ECTS: 1
Status: elective			Total hours: 20
Prerequisites:	According to the study regulation		
Lecturers: Professor Jasminka Delilović-Vranić, MD PhD; Assistant Nataša Loga-Andrijić, MD MSc			
1. Overall aim	To introduce students to: <ul style="list-style-type: none">- anatomy, physiology and the pathophysiology of cerebral circulation- a clinical picture of the most common intracerebral circulation disorders- diagnostic capabilities of neurosonography methods and part of therapeutic ones- possibilities of considering differential diagnosis after neurosonography methods and possible exclusion of hemodynamic causes of the disorders- the prevention of neurological disorders caused by circulatory disorders.		
2. Course contents	<p>Through the course of the subject the student will master the following knowledge:</p> <p>Module 1. Application of ultrasound in diagnosis of neurological disorders. Physical characteristics of ultrasound, spectrum and frequency analysis. The aim of the Module is to familiarize students with the possibilities of using ultrasound in diagnosing the condition of intracerebral hemodynamics.</p> <p>Module 2. Pathophysiological processes that affect intracerebral circulation. Degenerative changes in blood vessels (atherosclerosis) and bone-muscle structures. The aim of the Module is to familiarize students with degenerative changes occurring in the blood vessels during life as well as on the surrounding bone-muscle structures, all of which can, together and individually, affect the intracerebral hemodynamic disorder and the manifestation of neurological disorders.</p> <p>Module 3. Anatomy and physiology of cerebral circulation. Physiology of cerebral circulation - frontal and posterior cerebral bloodstream - Willis circle, mechanisms of autoregulation and constant cerebral circulation. The aim of the Module is to familiarize students with the anatomic structures of vascularization of the central and peripheral nervous system as well as the physiology of continuous cerebral circulation.</p> <p>Module 4. Color Doppler, CDFI (extracranial color Doppler) and TCD (Transcranial Doppler Sonography) The aim of the Module is to familiarize students with the ability to inspect the anatomical condition of individual blood vessels as well as evaluate the hemodynamic state in the extracranial and intracranial part. Color Doppler in carotid and vertebral artery view, IMT anatomy change index, spectral analysis, and hemodynamic condition assessment.</p> <p>Module 5. Application of neurosonology in everyday practice</p>		

	<p>The aim of the Module is to provide students with the opportunity to study Doppler diagnostics in various neurological disorders as well as in preventing them, and all this in one for the patient very comfortable way and very inexpensive. This method is used to evaluate hemodynamics in stroke patients, follow-up vasospasm after subarachnoid hemorrhage, in patients with migraine headache (in the pain and migraine phase), detection of possible AV malformations, brain death estimation, detection of intracranial tumor processes, and prevention of new stroke.</p>
3. Learning outcomes	<p>Through the course, students will adopt 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"> - Access to a patient with a neurological disorder where the use of the neurosonological method would be beneficial - Take anamnestic data in adequate manner - Perform a detailed neurological examination (cranial nerve, motility, tonus, trophic, coarse motor strength, muscular-tendon reflex, sensitivity - superficial and deep, cerebellar symptoms and signs, examine the gait) - Evaluate the need for neurosurgical methods (what is expected of them) <p><i>Skills to know how to perform practically:</i></p> <ul style="list-style-type: none"> - By using color Doppler ultrasound make a review of extracranial blood vessels (common a. carotis communis, its bifurcation) and recognizing the art. carotid externa and interna, at the starting point of the vertebral arteries - By using color Doppler ultrasound transcranially make the examination of the posterior circulation, the left and right vertebral arteries and the basilar artery and estimate the hemodynamic states in the same - By using color Doppler ultrasound transcranially make the examination of the frontal circulation: BCC, AC, ACA and ACP on the left and right side - Based on previous, obtain a complete insight into the condition of intracerebral hemodynamics and, depending on it, recommend (or not) therapeutic treatment - State evaluation - control examination <p>After attending classes, the student should adopt the following attitude:</p> <ul style="list-style-type: none"> - Detailed information on the physiology of cerebral circulation is necessary in assessing the functional state of the brain as a highly differentiated organ, both in conditions of rest, and in conditions of intense physical and psychic work. - Hypopoperfusion and brain hypoxia are at the heart of numerous neurological disorders.
4. Learning methods	<p>Teaching will be performed by:</p> <ul style="list-style-type: none"> - Lectures: 10 hours - Practical exercises: 10 hours

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 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, with evaluation and criteria identical to those applied in practical and partial exams. Only students who have passed the overall Practical exam may enter the written part 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 a final grade Grade is formed by summing all the points earned for each form 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>exceptional success without or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some 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>general 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 without or with minor errors	9 (B)	85-94	above the average, with some errors	8 (C)	75-84	average, with noticeable errors	7 (D)	65-74	general 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">– Csiba L, Baracchini C. Manual of Neurosonology, 1st ed. Cambridge University Press; 2016. <p>Additional:</p> <ul style="list-style-type: none">– Đelilović-Vranić J. Transkranijalna Doppler Sonografija – TCD – stetoskop za mozak. Sarajevo: NIR KCUS; 2013.																					

7. Note	<p>All forms of teaching are mandatory. Lectures and practices are held according to the program of the mentioned modules in total of 20 hours. The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform.</p> <p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is any working day pre-reserved on e-mail responsible teacher: jasminka.djelilovic@mf.unsa.ba.</p>
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COURSE PLAN: NEUROSONOLOGY

Week 15.	Form of teaching	Number of hours
Tuesday	Lectures: Anatomy and physiology of cerebral circulation – frontal and posterior cerebral blood flow, mechanisms of autoregulation, constant cerebral hemodynamics. Pathophysiological changes in blood vessels as well as on bone-muscle structures that contribute to the disruption of intracerebral hemodynamics, risk factors for its occurrence.	3
	Practices: History and neurological status of patients with impaired intracerebral hemodynamics and neurological status of patients with impaired intracerebral hemodynamics. Ultrasonography in neurology.	3
Wednesday	Lectures: Physical characteristics of ultrasound, spectrum analysis and ultrasound frequency. Color Doppler in diagnosis of neurological disorders, CDFI (Extracranial color Doppler) and TCD (Transcranial Doppler). Diagnostic capabilities of the same.	3
	Practices: Monitoring vasospasm at SAH, hemodynamic evaluation in migraine headaches.	3
Thursday	Lectures: The use of ultrasound in the diagnosis of neurological disorders, hemodynamic evaluation in patients with ischemic stroke.	3
	Practices: Detection and monitoring of AV malformation, tumor intracerebral hemodynamic tumor monitoring in brain death diagnosis.	2
Friday	Lectures: Partial exam	1
	Practices: Practical exam	2
Week 16.	Final exam	
Week 17.-20.	Repeated and Remedial exam	

Code: MFSE 0813	Course title: PREVENTION OF CARDIOVASCULAR DISEASES		
Level: clinical	Year: IV	Semester: VIII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites: According to the Study Regulation			
Lecturer: Professor Mirza Dilić, MD PhD			
1. Overall aim	To introduce students with high rates of morbidity and mortality, throughout the world, Europe, and especially in our country, to introduce students with importance of cardiovascular diseases (CVD) prevention, with influence of risk factors, with correct prediction of rising prevalence, as well as determination methods of CVD risk factors, methods and goals of prevention programs, as well as the total surplus of successful implementation of prevention programs, resulting in reduced morbidity, disability, absentism, and total health care costs.		
2.Course contents	<p>During the course the student will acquire the following knowledge:</p> <p>Module 1. The incidence and prevalence of cardiovascular diseases in the world, Europe, and Bosnia and Herzegovina The aim of this Module is to introduce students to the incidence, prevalence, morbidity and mortality of cardiovascular disease in the world, Europe, and Bosnia and Herzegovina, to compare rates of the above parameters, and to introduce students to the projection and prediction of overall increase of cardiovascular disease in the period up to 2025 year.</p> <p>Module 2. Risk factors for cardiovascular disease The aim is to understand unmodified risk factors: gender, age and hereditary factor, and the modified risk factors: smoking, hypertension, hyperlipoproteinemia, diabetes mellitus, lifestyle,obesity, alcohol, physical inactivity, psychosocial factors, thrombogenic factors, steroid hormone contraceptives.</p> <p>Module 3. The objectives of prevention The aim is to understand the main goals of prevention, the need and method of developing active prevention strategies, the need and method of determining priorities in preventive practices, training of medical staff, education of patients as well as public awerness of cardiovascular disease burden.</p> <p>Module 4. Assessment of cardiovascular risk The aim is to introduce students to become capable with the method of assessment of risk for the fatal outcome of cardiovascular disease, the assessment of primary risk, and assessment of secondary risk, using CVD risk charts and scoring systems that are recommended in the European and American guidelines.</p> <p>Module 5. Implementation of preventive cardiovascular medicine The aim is to understand the content and method of prevention programs, the main goals of prevention, the development of appropriate prevention strategies, participants in the preventive programs, and obstacles in carrying out routine prevention programs.</p>		
3. Learning outcomes	<p><i>The skills that student needs to know (practically carry out):</i></p> <ul style="list-style-type: none">- to determine the score of multiple risk factors- how to use European and American score table- to diagnose risk factors- to correlate risk factors		

	<ul style="list-style-type: none"> - knowledge of the principles and performance effectiveness of the reduction of risk factors to the overall reduction of morbidity and mortality of cardiovascular diseases - the basic principles of implementation of preventive program. <p>The skills that student is introduced in (need to know) :</p> <ul style="list-style-type: none"> - basic statistical methods, percentage account and Student's t-test in order to calculate the rate of morbidity and mortality. - practical use of the risk score table from European and American guidelines. - practical implementation of prevention programs in terms of primary prevention and secondary prevention of cardiovascular disease. <p>After elective course, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - a full understanding of the issues of prevention of cardiovascular disease - determining the level of risk using scoring of multiple risk factors - the needs of reduction of significantly increased values of risk factors - the importance of reduction of fatal events from cardiovascular diseases - the importance of practical implementation of preventive measures - the fact that total reduction of the morbidity rate benefits in reducing the overall cost of health care.
4. Learning methods:	<p>Course is organized in the form of lectures and practise.</p> <p>The total number of hours is 20, 10 hrs of lectures, 8 hrs of practice, and 2 hrs of exam.</p> <p>In practise hours will be used method of problem oriented work, for the given topic and population group.</p> <p>Students will be divided into smaller groups, up to a maximum of 5 students, with the aim of developing discussion and developing competition between the groups, in the sense which group will find a better solution for the given problem tasks.</p> <p>Groups will work on the project tasks, and the results and solutions will be present by group leaders. In the course performing, will be carried out continuous assessment on clinical vignettes.</p>
4. Methods of examination	<p>Methods of continuous assessments, Practical exam and Final (oral) exam.</p> <p>Practical exam</p> <p>Practical exam is perform through checklists. Checklist has itself 5 problem tasks i.e. 1 task from each Module. Each correct answer earns 5-10 points so max. points is 50. Student can earn max. of 50 points and to pass exam needs to gain min. of 28 points.</p> <p>Earn points will be added to points for Final exam grade.</p> <p>Final exam</p> <p>Final exam is in the form of oral examination in the manner of 1 question from each Module. Each correct answer earn 5-10 points, so max. points is 50 and to pass oral part of Final exam student need to gain min. of 28 points. 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 exams are conducted according to the previously defined criteria of Final exam.</p>

	<p>Final grading Summ of points from Practical exam and Final exam constitute final grading:</p> <table><tr><td><i>Mark</i></td><td><i>Points</i></td><td><i>Description of mark</i></td></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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6. Literature	<p>Obligatory:</p> <ul style="list-style-type: none">– Gielen S, DeBacker G, Piepoli FM and Wood D (eds). The ESC Textbook of Preventive Cardiology. Oxford University Press; 2015. <p>Additional:</p> <ul style="list-style-type: none">– Braunswald's Heart Disease: Bonow R (ed): A Textbook of Cardiovascular Medicine. Philadelphia: Saunders. 2011.																					
7. Notes	<p>All forms of teaching are obligatory.</p> <p>Lectures and practise are held according to the Curriculum of the Faculty Department of Internal Medicine. The practical work can be accessed only by students holding a valid sanitary booklet and a proper uniform. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations for students will be held in the period of 11 - 12h every day, by appointment to the responsible teacher Prof. dr Mirza Dilić, e-mail: mirza.dilic@mf.unsa.ba</p>																					

PLAN OF COURSE: PREVENTION OF CARDIOVASVULAR DISEASE

Week 15.	Form of teaching	Hours
Tuesday	Lecture: Incidence and prevalence of cardiovascular disease (CVD) through the world, Europe, and Bosnia and Herzegovina.	2
	Practical work: Task 1: counting incidence, prevalence, morbidity and mortality of cardiovascular diseases (CVD) in Canton Sarajevo, Federation of B&H and Bosnia and Herzegovina. Task 2: prediction of CVD morbidity and mortality rate up to 2025. y. Classroom practical work according to schedule.	2
Wednesday	Lecture: Risk factors for cardiovascular disease.	2
	Practical work: Task 1: counting of unmodifiable risk factors impact according to SCORE charts. Task 2: counting of modifiable risk factors impact according to SCORE charts. Task 3: counting of relative risk for fatal outcome in individuals age < 40 y. Classroom practical work according to schedule.	2
Thursday	Lecture: Goals of CVD prevention Estimation of CVD overall (lifetime) and fatal risk	3
	Practical work: Task 1: proposal of prevention goals for Canton Sarajevo. Task 2: proposal of prevention goals for Federation of B&H. Task 3: proposal of priorities assessing for cardiovascular diseases. Classroom practical work according to schedule.	2
Friday	Lecture: Implementation of CVD preventive programs. Obstacles and limitation in carrying out prevention programs.	2
	Practical work: Task 1: estimation of primary risk for fatal CVD outcome. Task 2: estimation of secondary risk for fatal CVD outcome. Task 3: clinical vignettes - estimation of overall CVD risk according to European SCORE charts and according to American ASCVD charts. Classroom practical work according to schedule.	2
	Practical exam	2
Week 16.	Final exam	
Weeks 17-20.	Repeated and Remedial exam	

Code: MFSE 0814		Subject: CLINICAL MICROBIOLOGY	
Level: clinical	Year: IV	Semester: VIII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers and assistants: Assistant Professor Velma Rebić, MD PhD; Associate Professor Sadeta Hamzić, MD PhD; Associate Professor Sabina Mahmutović-Vranić, MD PhD; Associate Professor Mufida Aljičević, MD PhD; Assistant Amila Abduzaimović, MD			
1. Subject aims	Electoral course aims of "Clinical Microbiology" for students is to acquire additional understanding of importance of clinical work in microbiology, apply knowledge from fundamental microbiology in clinical practice, as well as significance of prompt application of set etiological diagnosis for contagious diseases in choice of appropriate medication, undertaking specific and nonspecific preventive measures, and participating in appropriate laboratory tests.		
2. Learning outcomes (Knowledge, skills and competencies)	<p>Over the course "Clinical Microbiology" student will acquire the following knowledge:</p> <p>Module 1. Morphological and antigen characteristics of microorganisms of diagnostic importance Module objective for students is to get insight into possibilities of appropriate choice of microbiological techniques depending on clinical findings and disease development.</p> <p>Module 2. Importance of discovering and following for antimicrobial resistance Module objective is to introduce students with existing resistance for specific isolated microorganism genera in our and regional environment, and consideration of perspective for further development of antimicrobial resistance. To point out the importance of following antimicrobial resistance in our own environment related to prescribing empirical therapy, its continuation or change.</p> <p>Module 3. Viral – serological diagnostic procedures Module objective for students is to notice the differences and advantages of virus isolation over serological methods and methods of molecular biology methods (PCR, Western blot), and to follow reports and recommendations of WHO and National health organisations on movement of viral contagious diseases, possible viral mutations and preparation of adequate vaccines.</p> <p>Module 4. Application of microbiological diagnostic techniques in determining etiologic for parasitic and fungal diseases Module objective is to introduce students to possibilities of application of above methods in confirming etiologic diagnosis for parasitic and fungal diseases. Its specific aspect will be application of modern diagnostic methods in identifying certain parasitic and fungal infections in immune deficient patients. Special attention will be given to research of importance for specific fungal types, namely their secondary metabolites, micotocsins in causing specific pathological conditions, and application of microbiological methods in their diagnostics.</p> <p>Through lessons in electoral subject "Clinical Microbiology" student will acquire the following competencies:</p> <ul style="list-style-type: none">• Based on clinical findings and suspicion to disease, choose appropriate clinical biological material to process through adequate microbiological techniques,• Acquire isolation and identification methods for microorganisms,		

	<ul style="list-style-type: none"> • Master serologic – immunologic diagnostic tests, adequately interpret and apply given results, • Choose appropriate therapy. <p>After attending lectures in subject “Clinical Microbiology” students are going to acquire the following attitudes:</p> <ul style="list-style-type: none"> • Learn and adopt importance and necessity of microbiological confirmation at shown clinical suspicion to specific contagious disease • Importance of following antimicrobial resistance to some antimicrobials, and based on given testing results prescribe adequate antimicrobial therapy, toxin importance in etiology of some diseases (cancerous effect).
3. Teaching Methods:	<p>Teaching based on methods as follows:</p> <ul style="list-style-type: none"> • lectures (10 hours) • practice (10 hours)
4. Evaluation 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 Repeat and Remedial exams 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 The total number of points won on all forms of knowledge testing is translated into the final grade as follows:</p>

	Grade	Points	Description
	5 (F,FX)	Less than 55	Does not meet minimum criteria
	6 (E)	55-64	Meets minimum criteria
	7 (D)	65-74	Overall well, but with significant inaccuracies
	8 (C)	75-84	Average, with noticeable mistakes
	9 (B)	85-94	Above average, with some mistakes
	10 (A)	95-100	Exemplary, no mistakes or with insignificant mistakes
6. Literature	Obligatory: <ul style="list-style-type: none"> – Murray P, Baron EJ, Pfaller M, Tenoer R, Tenover R. Manual of Clinical Microbiology. Washington, DC: ASM Press; 2011. – Carroll K.Jawetz, Melnick & Adelberg's Medical Microbiology. 27th ed. New York: McGraw-Hill Education; 2016. 		
7. Note	<p>Students are obliged to attend all forms of teaching (lectures and practical work). Lectures and practical work will be conducted according to the Plan and the Curriculum at the Department of Medical Microbiology Faculty of Medicine of the University of Sarajevo. The practical work 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 every day from 11 a.m to 12 p.m.</p> <p>Professor in charge: velma.rebic@mf.unsa.ba</p>		

PLAN FOR SUBJECT: CLINICAL MICROBIOLOGY

Week 15.	Teaching methods and materials	Hours
Tuesday	<p>Lecture: Introduction to clinical microbiology. Resistance to antibiotics – leading medicine problem Intra hospital infections. Bacterial species of special importance. Multi resistant bacteria.</p> <p>Practical lab-work: Laboratory procedures in bacteriology. Clinical samples and their processing in microbiological laboratory. Infection of respiratory system, smear for throat and nose, sputum, bronchoalveolar spray, packaging, transport, interpretation for microbiological analysis results. Testing bacterial sensitivity to antimicrobial medicaments and choice of adequate antimicrobial therapy(disk – diffusion method, E-test).</p>	<p>3</p> <p>3</p>
Wednesday.	<p>Lecture: Biofilm- importance in pathogenesis and treatment of cronic infections. Viral infections of organic systems. Molecular biology methods in viral disease diagnostics</p> <p>Practical lab-work: Bacterial infections of organic systems – case report. Laboratory diagnostics for viral infections. Laboratory test results interpretation.</p>	<p>3</p> <p>3</p>
Thursday	<p>Lecture: Parasitic infections of organic systems. Fungal infections of organic systems. Opportunistic infections.</p> <p>Practical lab-work: Laboratory diagnostic for parasitic infections. Laboratory diagnostics for fungal infections.</p>	<p>2</p> <p>2</p>
Friday	<p>Partial exam</p> <p>Practical exam</p>	<p>2</p> <p>2</p>
Week 16.	Final exam	2
Week 17-20.	Repeated and Remedial exam	

Code: MFSE 0815		Course title: REHABILITATION OF PATIENTS AFTER STROKE	
Level: clinical	Year: IV	Semester: VIII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the study regulation		
Lecturers: Associate professor Edina Tanović, MD PhD; Associate professor Ksenija Miladinović, MD PhD; Full professor Narcisa Vavra Hadžiahmetović, MD PhD; Assistant Damir Čelik, MD MSc.			
1. Overall aim	To introduce students to the basics of the theory and practice of modern rehabilitation of patients after stroke.		
2. Course contents	<p>Through the curriculum a subject <i>Rehabilitation of Patients After Stroke</i> student will acquire the following knowledge:</p> <p>Module 1. Basics of stroke and its consequences on the patient's disability The objective of the module is to introduce students to the differences in etiology, degree of disability in relation to the etiology of stroke, risk factors and primary prevention of stroke.</p> <p>Module 2. The mobilization and kinesytherapy in patients with stroke The objective of the module is to introduce the basics of early rehabilitation plan in patients with stroke.</p> <p>Module 3. Occupational therapy, prevention of complications and training patients to activities of daily living The objective of the module is to introduce students to the basics of occupational therapy, possible secondary complications, their prevention, as well as the application of procedures that will lead to overcoming the activities of daily living after stroke</p> <p>Module 4. Professional rehabilitation of patients after stroke The objective of the module is to introduce students to the basics of professional rehabilitation and prevention of the emergence of new disability because of stroke.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>After successful completion of subject <i>Rehabilitation of Patients After Stroke</i> student will be able to adopt procedures in the field of rehabilitation with final goal of reaching full functionality, prevention of secondary complications and reducing disability in patients after stroke.</p> <p><i>The skills that a student needs to know to perform virtually (knows how and makes):</i></p> <ol style="list-style-type: none">1. Taking anamnesis in patients after stroke.2. Clinical examination - manual muscle test, measuring the range of motion, functional tests, cognitive tests.3. Occupational assessment the affected side of the body in patients after stroke4. Makeing and creating a plan of rehabilitation for patients after stroke.5. Evaluations of results medical rehabilitation in patients after stroke <p><i>The skills that the student needs to know (know how):</i></p> <ol style="list-style-type: none">1. Practical application of methods of physical therapy and rehabilitation in patients after stroke. <p>After one semester, the student should adopt the following attitudes:</p> <ol style="list-style-type: none">1. In patients who have had a stroke it is necessary in the appropriate period to begin physical therapy and rehabilitation.		

	<div>2. The optimal choice of methods of physical therapy and rehabilitation in patients after stroke is a prerequisite for successful treatment.</div> <div>3. Patients after stroke should be introduced to possibilities of continuing the secondary prevention of this disease.</div> <div>4. Patients after stroke need education about the prevention of complications and possible need for continued rehabilitation at home program.</div> <div>5. Education of the patient, family members and the environment on secondary stroke prevention, prevention of complications as well as the establishment of the sphincter control in patients after stroke is of essential importance.</div>						
4. Teaching methods	<div>The course is organized in the form of lectures and exercises.</div> <div>- Lectures: 10 hours</div> <div>- Exercises: 10 hours</div> <div>During the exercise will be used different methods: small-group work, discussion, case studies, project assignment, student presentations.</div> <div>As part of the scheduled number of hours, there will be continuous assessment forms.</div>						
5. Method of knowledge assessment and examination	<div>Student assessment will be carried out continuously during the semester and in the form of Final exam.</div> <div>Practical exam</div> <div>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.</div> <div>Partial exam</div> <div>Partial exam 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.</div> <div>Final exam</div> <div>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.</div> <div>The condition for passing the written part of the Final examination is previously passed the Practical exam.</div> <div>Achieved points are added to other points and together form the final score.</div> <div>Repeated and Remedial exam</div> <div>Repeated and Remedial exam take place according to previously defined criteria of the Final exam.</div> <div>The total number of points obtained through all forms of assessment, is converted to the final mark as follows:</div> <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></table>	Mark	Points	Description of mark	10 (A)	95-100	exceptional success without mistakes or with minor errors
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
6. Literature	<p>Recommended:</p> <ul style="list-style-type: none"> – Braddon R.L. Physical Medicine and Rehabilitation, 5th edition. Philadelphia: Saunders Elsevier; 2015. <p>Additional:</p> <ul style="list-style-type: none"> – Caplan LR. Caplan's Stroke: A Clinical Approach. 5th Edition. Philadelphia: Saunders Elsevier; 2016. – Tanović E. Opća kineziterapija. Sarajevo: V-Graf doo; 2012. – Vavra-Hadžiahmetović N, Meholjić A. Osnove kliničkog pregleda u fizijatriji. Sarajevo: Medicinski fakultet Univerziteta u Sarajevu, 2011. – Švraka E, Avdić D, Hasanbegović-Anić E. Okupaciona terapija. Sarajevo: Štamparija Fojnica D.D; 2012. 		
	<p>Lectures will be conducted according to the Plan and the Curriculum at the Amphitheaters in CCUS. The exercises will be realized 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>Consultations for students will be held in the period of 11 - 12h every day, by appointment to the responsible teacher on e-mail: edina.tanovic@mf.unsa.ba</p>		

COURSE PLAN: REHABILITATION OF PATIENTS AFTER STROKE

Week 15.	Teaching form	Hours
Tuesday	<p>Lecture: Introduction, definitions. Differences in etiology. Epidemiology. Degree of disability in relation to the etiology of stroke. Basis of brain circulation. Stroke pathophysiology. Risk factors, classification and control. Primary and secondary prevention of stroke. Prognosis. Clinical picture. Rehabilitation activities during the acute post stroke phase. Principles of stroke rehabilitation.</p> <p>Practical work: Taking anamnesis in patients after stroke. Clinical examination - manual muscle test, measuring the range of motion, functional tests, cognitive tests.</p>	<p>3</p> <p>3</p>
Wednesday	<p>Lecture: . Team management. Early rehabilitation plan in patients with stroke. Medical co-morbidities and complication. Potential treatment complication. The basis of occupational therapy. Application of rehabilitation in acute and chronic phase. Prevention secondary complications. The application of procedures. The activities of daily living after stroke.</p> <p>Practical work: Making and creating a plan of rehabilitation for patients after stroke . Occupational assessment the affected side of the body in patients after stroke. Evaluations of results medical rehabilitation in patients after stroke.</p>	<p>3</p> <p>3</p>
Thursday	<p>Lecture: The basis of professional rehabilitation .Prevention of the emergence of new disability because of stroke. Additional and orthopedic aids in occupational therapy.</p> <p>Practical work: Education of the patient and family members to prevent and the environment on secondary stroke prevention. Prevention of complications as well as the establishment of the sphincter control in patients after stroke. Training of using medical and orthopedic aids.</p>	<p>2</p> <p>2</p>
Friday	<p>Partial exam</p> <p>Practical exam</p>	<p>2</p> <p>2</p>
Week 16.	Final exam	
Week 17.- 20.	Repeated and Remedial exam	

Code: MFSE 0816	Course title: SKIN INFECTIONS		
Level: clinical	Study year: IV	Semester: VIII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers: Full professor Asja Prohić, MD PhD; Associate professor Emina Kasumagić-Halilović, MD PhD; Assistant professor Nermina Ovčina-Kurtović, MD PhD			
1. Overall aim	The overall aim of Skin infections course is to gain knowledge about skin infections including bacterial, viral, fungal, parasitic and protozoan infections.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Bacterial infections The goal of the module is to introduce a student with bacterial skin infections.</p> <p>Module 2. Viral infections The goal of the module is to introduce a student with viral skin infections.</p> <p>Module 3. Fungal infections The goal of the module is to introduce a student with fungal skin infections.</p> <p>Module 4. Parasitic infections The goal of the module is to introduce a student with parasitic skin infections.</p> <p>Module 5. Protozoan infections The goal of the module is to introduce a student with protozoan skin infections.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p><i>Through the lectures the students will acquire the following knowledge and competences:</i></p> <ol style="list-style-type: none">1. List the bacteria commonly involved in skin infection2. Recognize the clinical features of common bacterial infections.3. Recognize rarer bacterial infections such as staphylococcal scalded skin syndrome, toxic shock syndrome, necrotising fasciitis4. Formulate a management plan for a patient with a bacterial infection5. Recognize fungal infections of the skin6. Differentiate between fungal and yeast infections of the skin7. Discuss treatments available for fungal infection8. List the main viruses involved in skin disease9. Recognize the clinical features of common viral infections10. Discuss the treatment available for viral infections11. Recognize the clinical features of scabies and pediculosis12. Recognize the clinical feature of common protozoan infections <p><i>Through the practical work students will acquire the following skills:</i></p> <ul style="list-style-type: none">- Take anamnesis- The diagnostic methods for bacterial diseases: vitropression, test probe, punctuation and incision of furunculi.- Diagnostic methods in fungal diseases: taking material for native preparation and culture.- Diagnostics methods in parasitic diseases: taking material and interpretation of the results in scabies and Demodex folliculorum.		

4. Teaching methods	Lectures: 10 hours Practical work: 10 hours																					
5. Method of knowledge assessment and examination	<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 Practila 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 Repeated and Remedial exams 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 The total number of points won on all forms of knowledge 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">Goldsmith L, Katz S, Gilchrest B, Paller A, Leffell D, Wolff K. Fitzpatrick TB (editors). Fitzpatrick's Dermatology in General Medicine, 8th Edition, 2012.																					

	Additional: <ul style="list-style-type: none"> – Burgdorf W, Plewig G, Wolff HH, Landthaler M. (Eds.) Braun-Falco's Dermatology. Springer Berlin Heidelberg, 3rd ed. 2009. – Prohić A. Dermatovenerologija – udžbenik i atlas. Sarajevo: Medicinski fakultet Univerziteta u Sarajevu, 2018. (for students with knowledge of Bosnian language).
7. Remark	<p>Lectures will be conducted according to the Plan and the curriculum at the Amphitheaters in CCUS. The exercises will be realized at the Clinic for Dermatovenerology in the Clinical Center of the University of Sarajevo. Exercises can be attended only by students who have a valid sanitary booklet and a proper uniform.</p> <p>All forms of instruction are compulsory. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation period for students is any working day pre-reserved with Head of Cathedra: asja.prohic@mf.unsa.ba</p>

COURSE PLAN: SKIN INFECTIONS

Week 15.	Form of teaching	Hours
Tuesday	Lecture: Introduction and common dermatological problems - common skin infections. Bacterial skin infections: <i>staphylococcal</i> and <i>streptococcal infections</i> , corynebacterial infections, mycobacterial infections, spirochetal infections.	3
	Practical work: History taking in patients with skin infections. Examining the skin. Demonstration of sampling for bacteriological analysis. The diagnostic methods for bacterial diseases: vitropression, Gram staining and culture of pus or exudates, punctuation and incision of furunculi.	3
Wednesday	Lecture: Viral skin infections: viral exanthemas, herpes simplex and varicella zoster virus infections, human papilloma virus infections, cutaneous manifestations of human immunodeficiency virus. Fungal skin infections: <u>dermatophytae</u> infections, yeasts infections, tinea nigra, piedra, mould infections, deep and systemic fungal infections.	3
	Practical work: Basic principles of diagnosis of viral skin infections. Diagnostic methods in fungal diseases: taking material for direct microscopy and culture.	3
Thursday	Lecture: Parasitic infections: pediculosis, scabies, cutaneous larva migrans. Protozoan infections: leishmaniasis.	2
	Practical work: Diagnostics methods in parasitic diseases: taking material and interpretation of the results in scabies.	2
Friday	Partial exam	2
	Practical exam	2
Week 16.	Final exam	
Week 17-20.	Repeated and Remedial exam	

Code: MFSE 0817	Course title: NUTRITION FOR HEALTH PROMOTION AND DISEASE PREVENTION		
Level: preclinical	Study year: IV	Semester: VIII	ECTS: 1
Status: elective	Total contact hours: 20		
Prerequisites:	According to the Study Regulation		
Lecturers:	Associate Professor Amra Čatović, MD PhD		
1. Overall aim	The goal of this course to enable students to value nutrition as a science and as a platform for public health promotion and disease prevention and to apply critical thinking skills to decision-making about food choices, nutrition issues, and health.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p>Module 1. Assessing nutrition research to identify nutrition misinformation</p> <p>Module 2. Nutrient adequacy and obesity: influence of the gut microbiome on obesity</p> <p>Module 3. Food environment - carbohydrates: healthy and not-so healthy CHO-rich foods/beverages</p> <p>Module 4. Diet, aging, and cognitive function</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>Students will acquire knowledge necessary to appreciate the behavioral, cultural, social and environmental issues underlying dietary patterns.</p> <p>They will be able to identify how food determines human well-being every day, mental and physical performance, and long-term health and disease prospects. Students will understand how to optimize diet requires in-depth knowledge of the impact of foods and nutrients on body.</p> <p>Through practical work the students will acquire knowledge to identify considerations surrounding food choices and nutrition policy decisions and controversies. They will be able to evaluate existing myths and paradigms on nutrition.</p> <p><i>Through the lectures the students will gain following knowledge and competences to:</i></p> <ol style="list-style-type: none"> 5. Understand the unifying concepts of nutrition from a public health perspective, particularly with relevance to health promotion and disease prevention efforts. 6. Understand key diet and health relationships. 7. Explain the importance of nutrition to public and personal health. 8. Appreciate the behavioral, social, cultural and environmental issues surrounding food choices and nutrition policy decisions. <p><i>Through the practical work students will acquire following skills to:</i></p> <ul style="list-style-type: none"> - understand the use and interpretation of data from populations - assess design options in conducting nutritional epidemiology studies and implementing nutrition programs 		

	- critically evaluate published research																					
4. Teaching methods	Lectures: 10 hours Practical work: 10 hours																					
5. Method of knowledge assessment and examination	<p>Knowledge assessment will be carried out continuous during the semester and as written Final exam.</p> <p>Continuous knowledge and skills assessment will be carried out through completing assignments, class participation, and Term Project.</p> <p>Final exam will consist of 2 parts: test in the form of Multiple choice questions (MCQ) test and Extended response questions (ERQ) test.</p> <p>Final grades will be distributed as follows: Attendance, completing assignments and class participation in discussion groups: 20 points Project - Assessing the Nutrient and Food Adequacy of Popular Diets: 30 points Final Exam: 50 points</p> <p>Final grade will be calculated as a pondered arithmetic mean (i.e. joint arithmetic mean) of all grades given throughout semester.</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><tr><td><i>Grade</i></td><td><i>Number of points</i></td><td><i>Grade description</i></td></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>	<i>Grade</i>	<i>Number of points</i>	<i>Grade description</i>	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">– Frumkin H. Environmental Health: From Global to Local. San Francisco: Jossey-Bass; 2016. <p>Additional:</p> <ul style="list-style-type: none">– Whintney E. N, Rolfes S. R. Understanding Nutrition, 13th edition. Wadsworth Cengage, 2013.																					
7. Notes	<p>All proposed teaching types are obligated. In case a student misses more than 10% of classes (excused or not excused) one is obliged to colloquially pass all the missed.</p> <p>Consultation hours are every day 12.00-13.00 with prior announcement by email: amra.catovic@mf.unsa.ba</p>																					

COURSE PLAN: NUTRITION FOR HEALTH PROMOTION AND DISEASE PREVENTION

Days	Form of Instructions and materials	Number of classes
Monday		
Thursday	Lecture: National policies for nutrition. WHO recommendations on food industry practices. Influence of the gut microbiome on nutrition and health. Practical work: Role and actions of government in the design of the food system.	3 1
Wednesday	Lecture: Carbohydrates: Healthy and Not-so Healthy CHO-rich. Foods/Beverages. Popular diets. Eating disorders. Nutrition and cancer. Practical work: Probiotics and prebiotics. Nutrient and Food Adequacy.	4 2
Tuesday	Lecture: Nutrients status and chronic illness. Diet, Aging, and Cognitive Function. Dietary therapy. Practical work: Nutrition and hypertension. Physical activity for health: what kind? how much? how intense?	3 2
Friday	Exercises: Term project	5
Weeks. 17/18	Final exam (regular term)	
Weeks 19/20	Final exam (make-up examination term)	
September	Final exam (September examination exam)	

