

## SIXTH YEAR

ELEVENTH SEMESTER (WINTER)						
Code	Cours Title	L	P	S	TCH	ECTS
MFSE 1101	Family Medicine	45	75		120	10
MFSE 1102	Ophtalmology	30	30		60	4
MFSE 1103	Forensic Medicine	30	30		60	3
MFSE 1104	Emergency Medicine	25	30		55	3
MFSE 1105	Physical Medicine and Rehabilitation	20	25		45	3
MFSE 1106	Occupational Health	15	15		30	2
MFSE 1107	Social Medicine and Organization of Health Care	15	15		30	2
MFSE 1108	Introduction to Scientific Methods 2	15	15		30	2
MFSE 1109-1119	Elective Course 1	10	10		20	1
	TOTAL	205	245		450	30

### ELECTIVE COURSES:

- MFSE 1109 Clinical Epidemiology
- MFSE 1110 Clinical Trials in Practice
- MFSE 1112 Emergencies in Ophthamology
- MFSE 1113 Forencis Medicine Examiation of Human Remains
- MFSE 1114 Medical Expertise
- MFSE 1116 Nuclear Oncology
- MFSE 1117 Neurodevelopmental Disorders
- MFSE 1118 Anomalies of Urinary System in ChildrenMFSE
- MFSE 1119 Chronic Wound
- MFSE 1120 Clinical Aspects of Diseases Caused by Hypersensitive Reactions

Code: <b>MFSE 1101</b>	Course title: <b>FAMILY MEDICINE</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>10</b>
Status: <b>obligatory</b>	Total contact hours:		
Prerequisites:	<b>According to the Study regulation</b>		
Lecturers: assistant professor Zaim Jatić, MD, PhD, assistant professor Amira Skopljak, MD, PhD, assistant Nataša Trifunović, MD, assistant Hasiba Erkočević, MD			
1. Overall aim	<p>Aims of the Family Medicine Course are to acquaint students with:</p> <p>A. The definition of family medicine and the bio-psycho-social approach model to unselected problems with which patients show up</p> <p>B. The organization of family medicine as a part of the primary health care system with all its local particularities</p> <p>C. Health promotion and prevention in the context of family medicine</p> <p>D. The role of family physicians in communities and families</p> <p>E. The most common and most important clinical problems in family medicine</p> <p>F. Integration of previously acquired knowledge and skills with the aim of effectively resolving unselected patient's problems</p> <p>The role of family physicians as “gatekeepers” and coordinators of the patient’s health care within the comprehensive health system with the awareness of their own attitudes, capabilities and conditions of the social environment in which they work.</p>		
2. Course contents	<p>The following topics will be covered in the Modules:</p> <p><b>A. Introduction topics (2)</b></p> <p>Module 1. Introduction, definitions and organizations of FM</p> <p>Module 2. Holistic approach – the bio-psycho-social model of FM</p> <p><b>B. Work organization in FM (4)</b></p> <p>Module 3. The organization and structure of FM</p> <p>Module 4. Medical documentation (workshop as a part of practical training)</p> <p>Module 5. Communication in FM (workshop as a part of practical training)</p> <p>Module 6. Home care and palliative care in FM</p> <p><b>C. The community, family and family doctor (1)</b></p> <p>7. Module 7. Work in the community and with the family/families</p> <p><b>D. Promotion and Prevention (2)</b></p> <p>Module 8. Prevention in FM (workshops as a part of practical training)</p> <p>Module 9. Health promotion in FM</p> <p><b>E. Selected clinical topics in FM (10)</b></p> <p>Module 10. Infections of the respiratory tract in FM</p> <p>Module 11. Musculoskeletal problems in FM</p> <p>Module 12. Problems of elderly people in FM practice</p> <p>Module 13. Hypertension in FM</p>		

	<p>Module 14. Diabetes mellitus in FM (workshop as a part of practical training)</p> <p>Module 15. Uncomplicated urinary infections</p> <p>Module 16. The most common respiratory diseases</p> <p>Module 17. The most common cardiovascular diseases</p> <p>Module 18. The most common malignant diseases</p> <p>Module 19. The specifics of the health care of adolescents</p>
3. Learning outcomes (Knowledge, skills and competences)	<p>At the completion of family medicine course, a student will be able to demonstrate knowledge about:</p> <ul style="list-style-type: none"> <li>- Definition and bio-psycho-social model of FM,</li> <li>- Organization of FM,</li> <li>- Prevention and promotion in FM</li> <li>- Community and family, and</li> <li>- Selected clinical topics (the most common and significant disease in FM).</li> </ul> <p>During the Family Medicine Course, students will adopt and successfully perform the following skills.</p> <p>A. Skills a student should know how to perform effectively (<b>knows how and performs them</b>):</p> <ul style="list-style-type: none"> <li>- Taking a focused medical history</li> <li>- Focused physical examination (general, head and neck, thorax, abdomen, musculoskeletal, neurological)</li> <li>- Basic interpretation of ECG</li> <li>- Communication skills</li> <li>- Proper drug prescription writing</li> <li>- Adequate medical documentation (SOAP)</li> <li>- Using basic instruments and equipment in FM office</li> <li>- Certifying and managing absence from work (sick leave)</li> <li>- Reporting infectious diseases</li> <li>- Proper use of the IT system – opening patients’ files, data entry, writing prescriptions, referrals</li> <li>- Patients’ appointment scheduling</li> <li>- Home visits (organization and execution)</li> <li>- Dressing the acute and chronic wounds</li> <li>- Referral for a specialist examination – consultation</li> <li>- Referral to hospital</li> </ul> <p>B. Skills a student should be familiar with (<b>know how and when</b>):</p> <ul style="list-style-type: none"> <li>- The use of different diagnostic tests</li> <li>- Focused psychiatric interview</li> <li>- Use of ophthalmoscope</li> <li>- Administration of parenteral therapy (SC, IM, IV)</li> <li>- Using different questionnaires for disease diagnosis and assessment of disease control</li> <li>- Telephone conversation with the patient</li> <li>- Use of oxygenator</li> </ul>

	<ul style="list-style-type: none"><li>- Sterilization of instruments and materials</li><li>- Digital rectal examination</li><li>- Ear wax removal</li><li>- Hearing examination (by whisper and tuning fork)</li><li>- Changing urethral catheter in women and men</li><li>- Handling infectious waste</li><li>- Disposal and destruction of sharp objects</li></ul> <p>At the completion of family medicine course, a student will gain six core competencies of FM:</p> <ul style="list-style-type: none"><li>- Primary Care Management</li><li>- Person-centered Care</li><li>- Specific Problem Solving Skills</li><li>- Comprehensive Approach</li><li>- Community Orientation</li><li>- Holistic Approach</li></ul> <p>At the completion of family medicine course a student will adopt the following attitudes:</p> <ul style="list-style-type: none"><li>- Expressing a positive attitude towards the patient: unreserved support and avoiding condemnation</li><li>- Empathic support: the desire to understand the patient's feelings and to respect his/her opinion</li><li>- Respecting patients: unconditional care, recognizing patient's strengths and capabilities</li><li>- Self-awareness and self-control: knowledge of one's own needs, transfers and counter-transfers</li><li>- Honesty: not playing "the role of a doctor," being appropriate and consistent</li><li>- Reciprocity with patients: accepting the patient as an expert for his/her life, ideal partnership, ideal sharing of responsibilities</li><li>- Teamwork: teamwork with nurses, colleagues, specialists, caregivers, family members and other people who can help in resolving patient's problems</li></ul> <p>Respecting and cooperating with members of the patient's family</p>												
4. Teaching methods	Lectures – 45 hours Practical exercises in the family doctor's offices – 60 hours Practical exercises with assistants and assistant professors in forms of discussions and workshops in groups of 10 – 15 students – 15 hours												
5.Method of knowledge assessment and examination	<p>Continuous assessment of the knowledge and skills will be carried out through partial exams (2) and practical skills colloquium (2). Examination:</p> <table><tr><th>Exam</th><th>Topics</th><th>Type of examination</th><th>Max</th></tr><tr><td>Colloquium 1</td><td>Skills</td><td>Direct observation</td><td>10</td></tr><tr><td>Colloquium 2</td><td>Skills</td><td>Case presentation, oral</td><td>20</td></tr></table>	Exam	Topics	Type of examination	Max	Colloquium 1	Skills	Direct observation	10	Colloquium 2	Skills	Case presentation, oral	20
Exam	Topics	Type of examination	Max										
Colloquium 1	Skills	Direct observation	10										
Colloquium 2	Skills	Case presentation, oral	20										

	Partial exam 1	Module 1-7	MCQ, SAQ, EMQ, MEQ	30
	Partial exam 2	Module 8-19	MCQ, SAQ, EMQ, MEQ, SAMPQ, oral	40
6. Literature	<p>Freeman. T. McWhinney's Textbook of Family Medicine. 4th Ed. Oxford: Oxford UP, 2016.</p> <p>Teaching material produced by members of the Family Medicine Department</p> <p>"U.S. Preventive Services Task Force (USPSTF)." Recommendations of the U.S. Preventive Services Task Force. Agency for Healthcare Research and Quality (AHRQ), Mar. 2012. Web. 19 Jan. 2015.</p> <p><a href="http://archive.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/guide2012/abstract.html">http://archive.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/guide2012/abstract.html</a></p> <p>Allen, Justin, Bernard Gay, Igor Švab, Harry Crebolder, and Jan Heyrman. "The European Definition of General Practice / Family Medicine." Euract. WONCA Europe, 2005. Web. 19 Jan. 2015.</p> <p><a href="http://www.woncaeurope.org/sites/default/files/documents/DefinitionEURACTshort version.pdf">http://www.woncaeurope.org/sites/default/files/documents/DefinitionEURACTshort version.pdf</a></p>			
7. Remarks	<p>Student office hours are published in a separate schedule which can be found on the Department's notice-board and on faculty website. Pre-agreed consultations are obligatory, and can be scheduled with the Department's secretary or via e-mail: <a href="mailto:zaim.jatic@mf.unsa.ba">zaim.jatic@mf.unsa.ba</a></p>			

### COURSE PLAN: FAMILY MEDICINE

Weeks	Form of Instructions and materials	Number of classes
Week 12.	Monday Lecture with discussion: M1. Introduction, definitions and organization P / OM	2
	Practical exercises: V1. Introduction to the family medicine team and outpatient P / OM 2	5
	Tuesday Lecture with discussion: M2. Holistic approach - bio-psycho-social model of Family Medicine -	3
	Practical exercises: V2. Holistic approach and patient in the center of health care V3. Organization and structure of Family Medicine	5
	Working with regular patients in ambulatory family medicine 3	
	Wednesday Lecture with discussion: M3. Organization and structure Family Medicine	3
	Practical exercises: V4. Home visit	5
	Thursday Practical exercises	
	M4. Medical documentation (workshop)	3
	M5. Communication in PO / M (Workshop)	3
Week 13.	Friday Lecture with discussion: M6. Home treatment and palliative care in Family medicine, M7. Work in community and with family	3
	Practical exercises: V5. Communication in Family Medicine 2	5
	Monday Lecture with discussion: M9. Promoting health	3
	Practical exercises: M8. Prevention in Family Medicine (workshop in practical teaching)	4
	Tuesday Partial exam 1	1
	Practical exercises: V6. Working with family / family and community	
	V7. Prevention in pharmaceuticals - counseling and immunization 2	5
	Wednesday Lecture with discussion: M10. Infections of respiratory tract in Family Medicine	3
	Practical exercises: V8. Respiratory disease in Family Medicine	5

	<p>Thursday</p> <p>Lecture with discussion: M11. Musculoskeletal problems in Family Medicine</p> <p>Practical exercises: V9. Musculoskeletal problems in Family Medicine</p> <p>Friday</p> <p>Lecture with discussion: M12. Problems of the elderly in Family Medicine</p> <p>Practical exercises: V10. Problems of the elderly in Family Medicine</p>	<p>3</p> <p>5</p> <p>3</p> <p>5</p>
Week 14.	<p>Monday</p> <p>Lecture with discussion: M13. Hypertension in Family Medicine</p> <p>Practical exercises</p> <p>V11. Hypertension in Family Medicine</p> <p>Tuesday</p> <p>Lectures with discussion: M15. Urinary tract infections</p> <p>Practical exercises: M 14. Diabetes mellitus in P / OM (workshop) 3</p> <p>Wednesday</p> <p>Lecture with discussion: M16. The most common respiratory diseases in Family Medicine</p> <p>Practical exercises: V12. Urinary tract infections in Family Medicine</p> <p>Thursday</p> <p>Lecture with discussion: M17. The most common cardiovascular disease in Family Medicine</p> <p>Practical exercises: V14. The most common cardiovascular disease in Family Medicine</p> <p>Friday</p> <p>Lecture with discussion: Module 17. Specificity of adolescent health care</p> <p>M18. The most significant and most common malignancies in Family Medicine</p> <p>Practical exercises</p> <p>V15. Specificity of adolescent health care</p> <p>Partial exam 2</p>	<p>3</p> <p>5</p> <p>3</p> <p>3</p> <p>3</p> <p>5</p> <p>3</p> <p>5</p> <p>3</p> <p>5</p> <p>2</p>
Week 15.		
Weeks. 17/18	<b>Final exam (regular term)</b>	
Weeks 19/20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination exam)</b>	

Code: <b>MFSE 1102</b>	Course title: <b>OPHTHALMOLOGY</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>4</b>
Status: <b>obligatory</b>	Total contact hours: <b>60</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Professor Emina Alimanović Halilović, MD PhD; Assistant Professor Raif Serdarević, MD PhD; Assistant Edita Dervišević, MD PhD</b>			
1. Objective of the Course	Teaching of ophthalmology enables students to gain basic knowledge of the eye diseases, and the method of their diagnosis and treatment. Also teaching enables students to acquire basic skills in ophthalmological examinations.		
2.Course content	<p>Modules will cover the following topics:</p> <p><b>Module 1. Introduction to ophthalmology</b> This Model will include short background in ophthalmology, and students will be introduced to types of visual function tests.</p> <p><b>Module 2. Refraction, Adnexa</b> The aim of the Module is to introduce students to the basis of refraction and its correction, eyelid disorders, diseases of the lacrimal apparatus, with special emphasis on etiology, pathogenesis, clinical presentation and treatment of the most common conditions.</p> <p><b>Module 3. Anterior segment of the eye</b> The aim of the Module is to introduce students to pathology to conjunctiva, sclera, cornea, lens, iris and ciliary body through pathogenesis, clinical presentation, diagnosis and treatment of the most common conditions.</p> <p><b>Module 4. Glaucoma</b> The aim of this Module is to introduce students to etiology, pathogenesis, types, clinical presentation, diagnosis and treatment of glaucoma.</p> <p><b>Module 5. Retina I</b> The aim of the Module is to introduce students to the most common retinal diseases having adverse effects on the eye functions. The Module specifically includes retinal vascular diseases, diabetic and hypertensive retinopathy, retinopathy of prematurity, retinal detachment.</p> <p><b>Module 6. Retina II</b> The aim of the Module is to introduce students to age-related macular degeneration, and the most common tumors of the retina (chorioretinal malign melanoma and retinoblastoma).</p> <p><b>Module 7. Neuro-ophthalmology</b> The aim of this Module is to introduce students to the basis of neuro-ophthalmology and to the most common and most serious optic nerve disorders.</p> <p><b>Module 8. Strabismus and Amblyopia</b> The aim of the Module is to introduce students to etiology, types, clinical presentation, diagnosis and treatment of strabismus in patients.</p> <p><b>Module 9. Trauma and tumors of the eve and orbit</b></p>		



	<p>This Module should introduce students to reperfusion and contusion eye and orbital traumas, to trauma diagnosing and treatment. Students will also be introduced to the most common eye, adnexal and orbital tumors.</p> <p><b>Module 10. Ophthalmic microsurgery</b></p> <p>The aim of this Module is to introduce students to the most common surgical procedures in plastic reconstructive surgery of anterior eye segment, cataract, glaucoma, strabismys and surgical procedures of the posterior eye segment.</p>
3. Learning outcomes (Knowledge, skills and competences)	<p>Students will master the basics in ophthalmologic examination, diagnosing eye diseases, and acquire basic knowledge in the most common and the most important eye diseases, as well as in treatment thereof.</p> <p>Special emphasis will be placed on acquiring knowledge and skills that will enable them to recognize and correct triage ophthalmic diseases.</p> <p>Students will adopt the attitude that precise and timely detection of ophthalmic disease and their treatment can preserve eyesight.</p> <p><i>Through the lectures students will gain <b>following knowledge and competences:</b></i></p> <ol style="list-style-type: none"> <li>1. Introduction to methods of functional vision testing.</li> <li>2. Learn the basics of refraction and correction, diseases of eyelids and lacrimal apparatus, with special emphasis on the etiology, pathogenesis, clinical presentation, diagnosis and therapy.</li> <li>3. Know the most common diseases of the conjunctiva, sclera, cornea, lens, iris, ciliary body.</li> <li>4. Learn about clinical presentation, diagnosis and therapy of glaucoma.</li> <li>5. Discover many systemic diseases causing diseases of retina such as: retinal vascular diseases, diabetic and hypertensive retinopathy, retinopathy of prematurity, retinal detachment.</li> <li>6. Understand that wet age-related macular degeneration is the most common cause of blindness in elderly population. Learn that the most common retinal tumors are melanoma malignum and retinoblastoma horioretine.</li> <li>7. Develop basic understanding of the neuro-ophthalmology. Become familiar with the most common diseases of the optic nerve.</li> <li>8. Acquire a basic knowledge of strabismology and amblyopia. Adopt the attitude related to the importance of early first examination of the child, regular check-ups, and good doctor-child-parent cooperation, for the successful vision development.</li> <li>9. Understand that the perforating and chemical injuries are emergencies in ophthalmology, which should be treated urgently. Also, students need to become familiar with the most common tumors of the eye and orbit.</li> <li>10. Introduce to the most common surgical procedures in ophthalmology such as: reconstructive anterior segment surgery, cataract microsurgery, surgery for glaucoma, strabismus surgery and vitrectomy.</li> </ol> <p><i>Through practical classes students will acquire the <b>following skills:</b></i></p> <ul style="list-style-type: none"> <li>- Define visual acuity at distance and near without correction</li> <li>- Computer refractometry</li> <li>- Digital measurement of intraocular pressure,</li> <li>- Review of the eyelids,</li> <li>- Determining the field of view method of confrontation</li> </ul>

	<ul style="list-style-type: none"> <li>- Rinse foreign content from conjunctival sac</li> <li>- Local application of drugs</li> <li>- Setting of bandages</li> <li>- Applanation tonometry</li> <li>- Correction of myopia, hyperopia and astigmatism</li> <li>- Eye examination by microscope</li> <li>- Setting up cutaneous sutures</li> <li>- Performing Na fluorescein test</li> <li>- Performing Schirmer I and II test</li> </ul>
4. Learning methodology	<p>Lectures: 30 hours</p> <p>Practical classes: 30 hours</p>
5. Knowledge assessment methodology	<p>Knowledge assessment will be continuously tested during the study course.</p> <p><b>Continuous knowledge testing</b> Continuous knowledge assessment comprises: Practical exam 1, Partial exam 1, Practical exam 2 and Partial exam 2.</p> <p><b>Practical exam 1</b> Practical exam 1 comprises assessment of acquired skills related to taking anamnesis and local ophthalmological examination of a patient elaborated in Modules 1, 2, 3, 4 and 5. Evaluation of acquired skills will be performed based on previously completed tasks defined in the check list. Each task carries appropriate number of points. The total number of points the student may score in this part of the continuous knowledge assessment is 20. In order for the Practical exam 1 to be considered successfully passed the student must score a minimum of 11 points. The total score is added to other scores in determining final grade.</p> <p><b>Partial exam 1</b> Partial exam 1 comprises testing of knowledge adopted through Modules 1, 2, 3, 4 and 5. Partial exam 1 is a written test comprising 20 MCQ and 5 essay questions. Each correctly answered MCQ carries 2 points. Maximum number of points is 30. For the exam to be considered successfully passed the student must score at least 11 points in MCQ part and 6 points in essay questions (total of 17). The total score is added to other scores in determining final grade. If the student fails to successfully pass Partial exam 1 he/she will take it at Final exam.</p> <p><b>Practical exam 2</b> Practical exam 2 comprises assessment of acquired skills related to taking anamnesis and local ophthalmological examination of a patient elaborated in Modules 6, 7, 8, 9 and 10. Evaluation of acquired skills will be performed based on previously completed tasks defined in the check list. Each task carries appropriate number of points. Total number of points the student may score in this part of the continuous knowledge assessment is 20. In order for the Practical exam 2 to be considered successfully passed the student must score a minimum of 11 points. The total score is added to other scores in determining final grade.</p> <p><b>Partial exam 2</b> Midterm exam 1 comprises testing of knowledge adopted through Modules 6, 7,</p>

	<p>8, 9 and 10. Midterm exam 2 is a written test comprising 20 MCQ and 5 essay questions. Each correctly answered MCQ carries 2 points. Maximum number of points is 30. For the exam to be considered successfully passed the student must score at least 11 points in MCQ part and 6 points in essay questions (total of 17). The total score is added to other scores in determining final grade.</p> <p>If the student fails to successfully pass Midterm exam 2 he/she will take it at final exam.</p> <p><b>Final exam</b></p> <p>At final exam the student will take up parts of the course material which he/she failed to pass during the course. The precondition for taking written part of the Final exam is successfully passed practical exam. Final exam is conducted and graded based on previously defined knowledge assessment methodology.</p> <p><b>Repeated and Remedial exam</b></p> <p>If during the semester and at final exam the student failed to pass Practical and Partial exams, he/she will retake unsuccessfully passed parts of the course at Repeated and Remedial exam. The precondition for taking Repeated and Remedial exam is previously successfully passed Practical exam.</p> <p><b>Determining final grade</b></p> <p>The total number of points scored in all forms of knowledge testing is translated into final grade as follows:</p> <table><tr><th><i>Grade</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>Remarkable success without mistake 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>&lt; 55</td><td>Does not meet the minimum criteria</td></tr></table>	<i>Grade</i>	<i>Number of points</i>	<i>Grade description</i>	10 (A)	95-100	Remarkable success without mistake 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><b>Obligatory:</b></p> <ul style="list-style-type: none"> <li>– Gerstenblith AT, Rabinowitz MP. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Diseases. 16th edition, Wolters Kluwer, Lippincott Williams &amp; Wilkins, Philadelphia; 2012.</li> <li>– The Eye MD Association. Fundamentals and Principles of Ophthalmology. American Academy of Ophthalmology, 2013.</li> <li>– Kanski JJ, Bowling B. Clinical Ophthalmology: A Systematic Approach: Online and Print, 7th edition, Elsevier- Saunders, 2011.</li> <li>– Justis P, Ehlers and Chrag P. Shah. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Disease. 15th edition, Wolters Kluwer, Lippincott Williams &amp; Wilkins, Philadelphia, 2008.</li> </ul>
7. Note	<p>All types of the course are mandatory.</p> <p>Lectures and practical classes will be carried out in accordance with the course implementing plan at Ophthalmology Clinic of the CCUS and in lecture halls of the Faculty of Medicine, University of Sarajevo. Practical classes will be attended by student having valid sanitary booklet and proper uniform.</p> <p>Valid sanitary booklet and proper clothing are mandatory for student's attendance.</p> <p>Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultations will be provided at the Department of Ophthalmology each working day from 12.30 am to 1.15 pm with advance notice via Department of Ophthalmology e-mail : <a href="mailto:oftalmologija@mf.unsa.ba">oftalmologija@mf.unsa.ba</a></p> <p>Head of Department e-mail: <a href="mailto:emina.alimanovic@mf.unsa.ba">emina.alimanovic@mf.unsa.ba</a></p>

## COURSE PLAN: OPHTHALMOLOGY

Week 5.	Form of teaching	Number of hours
Monday	<p><b>Lecture:</b> Introduction to ophthalmology, background, anatomy and physiology of the eye and orbit</p> <p><b>Practical classes:</b> Visual function tests (visible proximity/distance sharpness, refraction correction, color vision, eye pressure measurement, examination of anterior and posterior segment in binocular biomicroscopy, visual field, ultrasound diagnosis, fluorescein angiography, OCT.</p>	<p>3</p> <p>3</p>
Tuesday	<p><b>Lecture:</b> Basis of refraction and correction. Pathology of eyelids (chalation, hordeolum, eyelid tumors, ptosis, blepharohalasis, blepharitis), pathology of the lacrimal apparatus (dacriocystitis, dacrioadenitis, stenosis canalicules lacrimalis, lacrimal sac tumors). Conjunctivitis, scleritis, keratitis, ulcer corneae, iridocyclitis, cataract, uveitis post.</p> <p><b>Practical classes:</b> Examination of anterior eye segment (eyelid eversions, biomicroscopic examination of the conjunctiva, cornea, sclera, fluorescein staining of the cornea, retained foreign body, tear duct flush). Testing of pupils, accommodation, convergence, examination of the cornea under direct focal illumination and conical beam, examination of lens (cataract), examination and differential diagnosis of patients with uveitis.</p>	<p>3</p> <p>3</p>
Wednesday	<p><b>Lecture:</b> Glaucoma – primary, secondary, congenital: etiology, clinical presentation, diagnosis, conservative and surgical treatment of glaucoma.</p> <p><b>Practical classes:</b> Measurement of IOP, eye examination of glaucoma patient, glaucoma visual field analysis, optical coherence tomography, surgeries for glaucoma, laser therapy.</p>	<p>3</p> <p>3</p>

Thursday	<b>Lecture:</b> Retinal vascular diseases, diabetic and hypertensive retinopathy, retinopathy of prematurity, retinal detachment: etiology, clinical presentation, diagnosis and treatment. Age-related macular degeneration and other macular diseases, chorioretinal malign melanoma and retinoblastoma: etiology, clinical presentation, diagnosis and treatment.	3
	<b>Practical classes:</b> Diabetic and hypertensive retinopathy, taking anamnesis, phantom exercises, introduction to bases of laser therapy in the laser treatment room.	3
Friday	<b>Practical exam 1</b>	2
	<b>Partial exam 1</b>	2
	<b>Lecture:</b> Age-related macular degeneration and other macular diseases, chorioretinal malign melanoma and retinoblastoma: etiology, clinical presentation, diagnosis and treatment.	2
<b>Week 6.</b>	<b>Form of teaching</b>	Number of hours
Monday	<b>Lecture:</b> Optic nerve pathology (neuritis, optic papillitis, papilla stagnans, atrophía papillae n. optici).	3
	<b>Practical classes:</b> Biomicroscopic examination of the eye fundus, B-scan ultrasound examination, CT and MRI of the orbit, visual field, OCT, EEG, audiovestibular testing, Color Doppler of the head and neck blood vessels in patients with age-related macular degeneration, neuro-ophthalmologic conditions and retinal tumors.	3
Tuesday	<b>Lecture:</b> Strabismus and amblyopia: etiology, clinical presentation, diagnosis and treatment.	3
	<b>Practical classes:</b> Orthoptic examination of a patient, analysis of synoptophore findings, occlusion therapy for amblyopia, binocular treatment of amblyopia, introduction to strabismus surgical procedures.	3

Wednesday	<b>Lecture:</b> Trauma and tumors of the eye and orbit	3
	<b>Practical classes:</b> History taking in ophthalmology, CT analysis of the orbit and bulbus oculi, ultrasonic findings. Presentation of the patient and video footage related to perforating injuries with or without internal structure prolapse, with or without foreign body, monitoring surgical procedures and treatment.	3
Thursday	<b>Lecture:</b> The most common surgical procedures in ophthalmology (phacoemulsification cataract surgery, trans pars plana vitrectomy, perforating keratoplasty, entropion and ectropion, chelation, tumors, enucleation, evisceration, trepano-trabeculectomy, dacryocystorhinostomy, reconstruction of anterior segment), strabismus surgery and ptosis surgery.	3
	<b>Practical classes:</b> Introduction to above mentioned surgical procedures via video footage or direct broadcasting from operation theatre, or monitoring operations in operating room.	3
Friday	<b>Practical classes:</b> Distance and near visual acuity corrections. Preparing patients for surgical treatments in ophthalmology.	2
	<b>Practical exam 2</b>	2
	<b>Partial exam 2</b>	2
<b>Week 17-18</b>	<b>Final exam (regular examination term)</b>	
<b>Week 19-20</b>	<b>Final exam (make-up examination term)</b>	
<b>September</b>	<b>Final exam (Septembar examination term)</b>	

Code: MSFE 1103	Course title: FORENSIC MEDICINE		
Level:	Study year: VI	Semester: XI	ECTS: 3
Status: obligatory	Total contact hours: 60		
Prerequisites:	According to the Study Regulation		
Lecturers: Professor Nermin Sarajlić, MD PhD; Assistant Professor Adis Salihbegović, MD Assistant Anes Jogunčić, MD; Assistant Emina Spahić, MD			
1. Overall aim	Aim of this course is to give the students the basic theoretical principles of forensic medicine, including the issues of thanatology, forensic traumatology (to identify and characterize injuries on the body) expert opinion and medical law.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p><b>Module 1. Introduction and thanatology</b> The goal of the Module is to introduce a student with signs of death, agony and death, relationship between illness and injury, relationship between illness and nonviolent death, determining the time of death, early signs of death, late signs of death and coroner's inquest.</p> <p><b>Module 2. Mechanical injuries</b> The goal of the Module is to introduce a student with the basics of the formation of mechanical injuries and their important forensic aspects.</p> <p><b>Module 3. Asphyxia, drowning, thermal and electrical injuries</b> The goal of the Module is to introduce a student with the mechanisms of emergence and forensic aspects of different types of non-mechanical injuries.</p> <p><b>Module 4. Medical law, expert opinion and legal system</b> The goal of the Module is to introduce the student with the role of forensic medicine expertise in criminal and civil proceedings, with special emphasis on deontology</p> <p><b>Module 5. Forensic sexology, sexual offences</b> The goal of the Module is to introduce the student with sexology and infanticide from an aspect of the forensic medicine: qualitative and quantitative aberrations of sexual impulse, criminal offenses against personality and morality dignity, forensic medicine neonatology, maturity and ability to live, identification of newborns, natural and violent causes of newborn death, active and passive murder of the newborn.</p>		



	<p><b>Module 6. Forensic toxicology</b> The goal of the Module is to introduce the student with the basics of toxicology and the effects of certain poisons on health and death: the fate of poison in the organism, factors affecting the toxicity of certain substances, classification of poisons, toxicity tests, evidence of poisoning, Significant poisons in forensic medicine - including alcohol.</p> <p><b>Module 7. Medical criminalistics</b> The goal of the Module is to introduce the student with the basics of medical criminology: murder, suicide, differential diagnosis of accidental murder and suicide, biological traces, differentiation of violent death by origin, examples from practice.</p> <p><b>Module 8. Forensic anthropology</b> The goal of the Module is to introduce the student with the basics of forensic anthropology: anthropology (identification of exhumed human remains, determination of the biological profile of human remains), DNA analysis, medical expertise of injuries, cause of death and identification.</p>
3. Learning outcomes  (Knowledge, skills and competences)	<p>The basic theoretical principles of forensic medicine are taught, including the issues of thanatology, forensic traumatology, identification, expert opinion and medical law.</p> <p>Students will acquire knowledge on the interpretation of medical observations and facts for the purposes of legal system.</p> <p>After completion of the course, the students will be qualified to perform external examination of dead body, to recognize signs of death in order to issue death certificate. Further on, they will learn to identify and characterize injuries on the body, to recognize the cases of suspicious and non-natural death and to place a request for forensic autopsy. In addition, students will become competent for toxicology analysis sampling and forensic anthropology.</p>
4. Teaching methods	<p>Lectures: 24 hours</p> <p>Seminars: 6 hours</p> <p>Practical work : 30 hours</p>
5. Method of knowledge assessment and examination	<p><b>Continuous assessment of knowledge</b></p> <p>Continuous assessment of knowledge and skills includes practical exam 1, practical exam 2, partial exam 1 and partial exam 2.</p> <p><b>Practical Exam 1</b></p> <p>It implies a verbal examination of knowledge, practically acquired skills through</p>

	<p>modules 1-3 in the autopsy hall on the corpus material or museum preparations.</p> <p><b>Practical Exam 2</b></p> <p>It implies verbal test of knowledge and practically accepted skills processed through modules 4-8.</p> <p>The total number of points a student can earn through both of practical exams is 40 points. The student must earn at least 21 points to complete the practical exam. The number of points earned is added to the rest of points when forming the final score.</p> <p><b>Seminars</b></p> <p>Interactive classroom lessons on the given topic using PowerPoint presentations. The total number of points a student can earn through the seminar is 10.</p> <p><b>Partial exam 1</b></p> <p>It implies a written exam with 25 MCQs and essay questions, which include knowledge gathered through modules 1-3. Each correct answer is 1 point, 25 points in total. In order to pass this partial exam the student must earn at least 13 points. The number of earned points is added to the rest of the points when forming the final grade.</p> <p><b>Partial exam 2</b></p> <p>It implies a written exam with 25 MCQs and essay questions, which include the knowledge gathered through modules 4-8. Each correct answer is 1 point, 25 points in total. In order to pass this partial exam the student must earn at least 13 points. The number of earned points is added to the rest of the points when forming the final grade.</p> <p><b>Final exam</b></p> <p>If a student has not passed the practical and/or partial parts of the exam during the semester, or is dissatisfied with the result achieved on the partial exams, those partial exams can be taken again as a part of the Final Exam.</p> <p>The requirement for taking the written part of the exam is previously passing the practical exam. The final exam is conducted in two exam terms.</p> <p><b>Remedial exam/September exam term</b></p>
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	<p>Remedial exam/September exam terms are conducted according to the previously defined criteria of the Final examination.</p> <p><b>Forming a final grade</b> The final grade is formed by summing up all the points earned by each form of knowledge test.</p> <table><tr><th>Rating</th><th>Number of points</th><th>Description of the 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>&lt; 55</td><td>Does not meet the minimum criteria.</td></tr></table>	Rating	Number of points	Description of the 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><b>Recommended:</b></p> <ul style="list-style-type: none"><li>– Saukko P, Knight B. Knight’s Forensic Pathology. 3rd ed. London: Arnold Publishers; 2004.</li></ul> <p><b>Additional:</b></p> <ul style="list-style-type: none"><li>– Di Maio DJ, Di Maio VJM. Forensic Pathology. 2nd ed. Boca Raton: CRC Press; 2001.</li></ul>																					
7. Remarks	<p><b>All forms of education are mandatory. Justification of absence from lectures should be in accordance with legal regulations.</b></p> <p><b>Consultation terms for students are in agreement with the responsible teacher, with prior notice to the secretary of the Department or by e-</b></p>																					

	<b>mail:nermin.sarajlic@mf.unsa.ba</b>
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## COURSE PLAN: FORENSIC MEDICINE

Week 7.	The form of teaching and materials	Number of hours
Monday	<p><b>Lectures:</b></p> <ul style="list-style-type: none"> <li>• Introduction to Forensic Medicine, health damage and death</li> <li>• Thanatology - agony and death, apparent death, supravital reactions, autolysis, determination of death, determination of the time of death, early signs of death, late signs of death, examination of the cadaver – coroner’s inquest</li> </ul> <p><b>Exercises:</b></p> <ul style="list-style-type: none"> <li>• Demonstration of the autopsy techniques,</li> <li>• Demonstration of injuries on gross human organ samples – museum formaldehyde specimens</li> </ul>	3
		3
Tuesday	<p><b>Lectures:</b></p> <ul style="list-style-type: none"> <li>• Non-specific mechanical injuries,</li> <li>• Specific mechanical injuries,</li> <li>• Vital reactions and some general consequences of mechanical injuries,</li> <li>• Head and brain injuries</li> <li>• Mechanical injuries to certain parts of the body</li> </ul> <p><b>Exercises:</b></p> <ul style="list-style-type: none"> <li>• Diagnostics changes and injuries on the corpse, an autopsy report writing, giving opinions on the cause of death and its origin, writing valid diagnosis of the cause of death</li> <li>• Demonstration of injuries on gross human organ samples – museum formaldehyde specimens</li> </ul>	3
		3









Code: <b>MFSE 1104</b>	Course title: <b>EMERGENCY MEDICINE</b>		
Nivo: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>3</b>
Status: <b>obligatory</b>	Total contact hours: <b>55</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Assistant Professor Slavenka Štraus MD PhD; Assistant Professor Amel Hadžimehmedagić MD PhD; Professor Enra Suljić MD PhD; Professor Šekib Sokolović MD PhD</b>			
1. Overall aim	Getting acquainted with pre-hospital and initial hospital organization and handling urgent and critical medical conditions by applying basic and expanded cardiopulmonary resuscitation measures. Eliminate mistakes that may occur during care in emergency medical practice. In addition to performing the right procedures in cardiopulmonary resuscitation (adults and children), the use of drugs according to the Advance Cardiac Life Support protocol.		
2. Course contents	<p>Throughout the course, the student will adopt the following <b>knowledge</b>:</p> <p><b>Module 1. Principles of emergency medicine. Evaluation of vital functions. Acute pain as the 5th vital parameter.</b> The goal of the Module is to introduce the student with the application of all necessary procedures in the evaluation of vital functions as well as with the use of advanced cardiopulmonary resuscitation measures (ALS). To overcome the negative effects of insufficient treatment of acute pain as an important predictor of endangering the patient's and psychic integrity.</p> <p><b>Module 2. Emergency conditions in surgery</b> The goal of the Module is to overcome all aspects of acute surgical diseases and injuries that endanger the lives of the injured and the sick.</p> <p><b>Module 3. Emergency conditions in internal medicine</b> The goal of the Module is to overcome all aspects of acute internal diseases and conditions that endanger the life of the patient.</p> <p><b>Module 4. Emergency conditions in neurology</b> The goal of the Module is to provide adequate guidelines in order to make a correct neurological examination in all emergency situations in neurology, to determine the severity of the newly emerging condition, and to establish a working diagnosis before applying appropriate therapy.</p>		
3. Learning outcomes (knowledge, skills and competences)	<p><i>Through the cours students will aquire following <b>skills</b>:</i></p> <p><i>Skills that a student needs to know (<b>knows how and perform</b>):</i></p> <ul style="list-style-type: none"><li>- assessment and maintenance of the airway, artificial ventilation</li><li>- acute chest pain (evaluation and care)</li><li>- acute coronary syndrome (evaluation and care)</li><li>- acute cardiac arrest in children and adults (ALS)</li><li>- cardiogenic shock, syncope</li><li>- hypertensive emergency conditions</li><li>- pre arrest arrhythmias (tachyarrhythmias, bradyarrhythmias)</li><li>- the phase of a sudden death diagnostic procedures</li><li>- acute bleeding, hypovolemic shock (circulation volume compensation)</li></ul>		

	<ul style="list-style-type: none"> <li>- anaphylactic shock</li> <li>- respiratory insufficiency, acute asphyxia (signs, initial care)</li> <li>- acute abdominal pain (evaluation, differential diagnosis, initial care)</li> <li>- elevated body temperature in children, dehydrated child</li> <li>- severe trauma (trauma maior-ISS&gt; 16, pre-hospital examination, CABD principle - care of injuries at the site, hemodynamic stabilization and care during transportation pre-hospital, initial hospital care)</li> <li>- acute poisoning (initial care)</li> </ul> <p><i>The conditions that the student should recognize initially, act correctly (diagnosing), while carrying out procedures that are important for further urgent care:</i></p> <ul style="list-style-type: none"> <li>- dissection, rupture, acute occlusion, deep vein thrombosis (DVT), embolism</li> <li>- acute peripheral arterial ischaemia</li> <li>- acute intracranial / spinal compression</li> <li>- subarachnoid bleeding (SAH)</li> <li>- acute intestinal / urinary obstruction</li> <li>- epilepsy and convulsions, delirium, acute confusional conditions</li> <li>- acute headache, ischemic stroke, transient ischemic attack (TIA)</li> </ul> <p>After attending lectures, <i>the student should adopt the following attitudes:</i></p> <ul style="list-style-type: none"> <li>- Correctly assess the condition of a sick or injured person affects the outcome of taking care of the urgent, life-threatening conditions.</li> <li>- Correctly take all the measures and procedures are most needed for the initial and definitive care of all (critical) emergency situations with an emphasis on the life threat.</li> </ul>
4. Learning methods	<p>Teaching contains of:</p> <ul style="list-style-type: none"> <li>- Lectures: 28 hours</li> <li>- Exercises: 27 hours</li> </ul> <p>Modul 1 and 2 in total 29 hours - lectures 15 hours, exercises 14 hours  Modul 3 in total 18 hours - lectures 9 hours, exercises 9 hours  Modul 4 in total 8 hours - lectures 4 hours, exercises 4 hours</p>
5. Knowledge assessment methods	<p>Student knowledge checking will be carried out continuously during the course.</p> <p><b>Practical exam</b>  The practical work of the students will be evaluated during exercises at the Clinic of Emergency Medicine CCUS by assistants and teachers of the Department of Surgery, Internal Medicine and Neurology. From each Module, students will receive 2 defined tasks. Each task in the check list (total of 8) is evaluated with +/- . Positively solved task is worth 1 point and is added to the total number of points for each test module. The maximum number of points is 8. The points of unsuccessfully solved tasks are not deducted from the total points achieved on the test. The condition for passing the Practical exam is to at least correctly answer one of the tasks given in every Module.</p> <p><b>Partial exam</b>  Partial exam will be in written form (MCQ test and essay). The total number of</p>

	<p>points on the test that can be achieved on individual modules is: Module 1 and 2 in total 40 points Module 3 in total 28 points Module 4 in total 24 points</p> <p>The minimum number of points for each successful test: for Module 1 and 2 is 22 points, for Module 3 is 15 points and for Module 4 is 14 points, in total 50 points.</p> <p><b>Final exam</b> If the student has not passed the Partial Exam, he will take the exam at the Final exam according to the previously defined rules for taking the Partial exam. The condition for passing the Final exam was previously passed the practical part of the exam.</p> <p><b>Repeated and Remedial exam</b> The Repeated and Remedial exam will be conducted according to the previously defined criteria of the Final exam.</p> <p><b>Forming a final grade</b> The final grade is formed by summing up all the points scored for each form of knowledge test.</p> <table><tr><th>Rating</th><th>Number of points</th><th>Description of the 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>&lt; 55</td><td>Does not meet the minimum criteria.</td></tr></table>	Rating	Number of points	Description of the 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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5(F, FX)	< 55	Does not meet the minimum criteria.																				
6. Literature	<p><b>Mandatory:</b></p> <ul style="list-style-type: none"><li>– Tintinalli J, Stapezynski J, Ma J, Cline D. Tintinalli's Emergency Medicine: A Comprehensive Study Guide, Seventh Edition. McGraw-Hill Inc; 2010.</li></ul> <p><b>Extended:</b></p> <ul style="list-style-type: none"><li>– Hadžiahmetović Z. Urgentna medicinska pomoć. Sarajevo: Dover &amp; Co; 2008.</li><li>– Gašparović V. Hitna medicina. Zagreb: Medicinska naklada; 2014.</li></ul>																					

7. Remarks	<p>All forms of teaching are mandatory. Lectures and exercises will be held according to the implementation plan and program at the Clinical Center of the University of Sarajevo. Each student must have a properly certified Sanitary booklet and adequate medical clothing to be able to attend classes.</p> <p>Fixing absences from classes should be in accordance with legal regulations. Pre-agreed consultations between student and lecturer by e-mail every from 12 to 14 hours.</p>
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### COURSE PLAN: EMERGENCY MEDICINE

Week 9.	Form of teaching	Number of hours
Monday	<b>Lecture:</b> CPR in adults and children. Drug use in CPR. Shock (hemorrhagic, septic, cardiac, anaphylactic). Guidelines for the treatment of acute pain. Acute intoxication.	3
	<b>Exercises:</b> Assessment of the state of emergency patient. Algorithms for implementing basic and advanced methods of maintenance of life.	3
Tuesday	<b>Lecture:</b> Injuries of head and spine. Chest injuries. Abdominal injuries. Injuries of the extremities.	4
	<b>Exercises:</b> Access to an injured patient - case reports	3
Wednesday	<b>Lecture:</b> Acute abdominal syndrome. Ileus. Acute appendicitis. Acute inflammation of the gallbladder.	3
	<b>Exercises:</b> Emergency conditions in surgery - case reports	3
Thursday	<b>Lecture:</b> Mass injuries, polytrauma. Accidental conditions (drowning, hypothermia, burns, electric shock, hyperthermia, frostbite).	3
	<b>Exercises:</b> Assessment of condition of the polytraumatized - the scale, the diagnosis and the therapeutic priorities in injured patients before hospital and in hospital.	3
Friday	<b>Lecture:</b> Hypertension and hypertensive crisis. Differential diagnosis of pain in chest. Myocardial infarction. Angina pectoris. Arrhythmia. Cardiac arrest.	2
	<b>Lecture:</b> Obstructive respiratory syndrome. Asthma attack. Acute embolism and lung infarction. Hemoptysis. Acute edema of the lungs. Acute respiratory distress syndrome (ARDS) in adults.	2
	<b>Exercises:</b> Emergency conditions in cardiology - case reports	2
Week 10.	Form of teaching	Number of hours
Monday	<b>Lecture:</b> Diabetes mellitus (acute complications). Addison (adrenal) crisis. Thyroid storm.	2
	<b>Exercises:</b> Emergency conditions in pulmonology - case reports	2
	<b>Exercises:</b> Emergency conditions in endocrinology - case reports	2

Tuesday	<b>Lecture:</b> Intestinal bleeding. Acute pancreatitis	2
	<b>Lecture:</b> Quantitative and qualitative consciousness disorders. Acute severe headache. TIA	2
	<b>Exercises:</b> Emergency conditions in gastroenterology - case reports	2
Wednesday	<b>Lecture:</b> Stroke (ischemic, hemorrhagic). Epilepsy. Protocols in urgent neurology.	2
	<b>Exercises:</b> Emergency conditions in neurology - case reports	4
Thursday	<b>Practical exam</b>	3
	<b>Partial exam</b>	3
Week 17-18	<b>Final exam (regular term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September term)</b>	

Code: <b>MFSE 1105</b>	Course title: <b>PHYSICAL MEDICINE AND REHABILITATION</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>3</b>
Status: <b>obligatory</b>	Total contact hours: <b>45</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Full professor Narcisa Vavra-Hadžiahmetović MD PhD; Associate professor Edina Tanović MD PhD; Associate professor Ksenija Miladinović MD PhD; Assistant Damir Čelik MD MSc.</b>			
1. Overall aim	The overall aim of the course is to increase understanding of procedures in the field of physical medicine and rehabilitation in order to healing diseases and injuries and prevention of secondary complications and disability in patients.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p><b>Module 1. Basics of physical medicine and rehabilitation</b> The aim of the module is to introduce the student with the domain and the connection of physical medicine and rehabilitation with other branches of medicine, with the division of physical medicine and rehabilitation and with specifics of examination and working with patient. To familiarize with the principles of kinesitherapy in rehabilitation programs.</p> <p><b>Module 2. Physical therapy I</b> The aim of the module is to introduce the student with application of physical agents in efectrotherapy, phototherapy, laser therapy.</p> <p><b>Module 3. Physical therapy II</b> The aim of the module is to introduce the student with application of physical agents in thermotherapy, hydrotherapy, balneotherapy, magnetotherapy, transcutaneous electrical nerve stimulation (TENS) and manual massage.</p> <p><b>Module 4. Rehabilitation of patients with upper motor neuron diseases</b> The aim of the module is to introduce the student with rehabilitation programs in neurology, among patients with impaired central motor neuron.</p> <p><b>Module 5. Rehabilitation of patients with lower motor neuron diseases</b> The aim of the module is to introduce the student with rehabilitation programs in neurology, among patients with impaired peripheral motor neuron.</p> <p><b>Module 6. Traumatology and orthopaedic rehabilitation</b> The aim of the module is to introduce the student with rehabilitation programs in traumatology and orthopedics.</p> <p><b>Module 7. Rehabilitation of patients with rheumatic diseases</b> The aim of the module is to introduce the student with rehabilitation programs in rheumatology.</p> <p><b>Module 8. Cardiac rehabilitation</b> The aim of the module is to introduce the student with rehabilitation programs for cardiovascular patients.</p> <p><b>Module 9. Pediatric rehabilitation and rehabilitation in osteoporosis</b> The aim of the module is to introduce the student with the principles of child rehabilitation and the specificities of rehabilitation of persons with osteoporosis.</p>		

<p>3. Learning outcomes (Knowledge, skills and competences)</p>	<p>The student will acquire knowledge regarding the principles of physical medicine and rehabilitation. In physical medicine, students will learn the basics about using various forms of energy and physical agents to assist in healing. They will learn about rehabilitation in orthopedic patients, neurologic patients and post-surgical patients.</p> <p><i>Through the lectures the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none"> <li>1. Recognize major functional disorders of musculoskeletal system</li> <li>2. Understand the impact of chronic illness on functioning</li> <li>3. Define impairment, disability and handicap</li> <li>4. Differentiate disease and consequences of disease on personal and society level</li> <li>5. Indicate goal of the rehabilitation process</li> <li>6. Name the members of rehabilitation team and their role in rehabilitation process</li> <li>7. Describe mechanism of action and indication of particular physical agent</li> </ol> <p><i>Through the practical work students will acquire following skills:</i></p> <ol style="list-style-type: none"> <li>1. Medical history taking in Physical Medicine and Rehabilitation.</li> <li>2. Functional assessment: functional, motor function, cognitive, pain and social tests.</li> <li>3. Working diagnosis based on an assessment of the general condition and functional tests.</li> <li>4. Choosing a rehabilitation program</li> <li>5. Assessment of rehabilitation results</li> <li>6. Patient education, family education, community education</li> </ol>
<p>4. Teaching methods</p>	<p>Lectures: 20 hours, Practical works: 25 hours</p>
<p>5. Method of knowledge assessment and examination</p>	<p>Student assessment will be carried out continuously during the semester and in the form of final exam.</p> <p><b>Continuous assessment of knowledge</b> Continuous assessment includes partial exam Part 1, partial exam Part 2 and Practical exam.</p> <p><b>Partial exam 1</b> Partial exam 1 examines the knowledge gained through modules 1-4. The exam consists of the test with 25 MCQ questions and 5 questions with writing answers. Each correct answer is scored with 1 point. The maximum number of points the student can win is 30. To qualify as a passed student, the student must earn a minimum of 17 points (14 points based on the MCQ response and 3 on the writing answers). The awarded number of points is added to the other points when forming the final grade</p>



**Partial exam 2**

Partial exam 2 examines the knowledge gained through modules 5-9. The exam consists of the test with 40 MCQ questions and 10 questions with writing answers. Each correct answer is scored with 1 point. The maximum number of points the student can win is 50. To qualify as a passed student, the student must earn a minimum of 28 points (22 points based on the MCQ response and 6 on the writing answers). The awarded number of points is added to the other points when forming the final grade

**Practical exam**

Practical exam 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). The maximum number of points that a student can win is 20. For practical exam to be considered passed, student must gain at least 11 points. Number of points will be added to other points in the formation of the final mark.

**Final exam**

At the Final exam, the student places the unsupported parts of the exam.

**The requirement for a written part of the final exam is a pre-passed practical part of the exam.** On a practical exam, the accepted skills are evaluated through a checklist, through which the student can win up to 20 points. To qualify for a practical exam, a student must earn at least 11 points. The awarded number of points is added to the other points when forming the final grade.

If a student passes the full written part of the exam, the Final exam has 65 MCQ questions and 15 questions with the enrollment. Each correct answer is scored with 1 point. The maximum number of points a student can win is 80. To qualify as a passed student, a minimum of 44 points (36 points based on the MCQ response and 8 points based on the writing answers).

**Repeated and Remark exam**

If a student has not passed the Practical and Partial exams during the semester and on the Final exam, unsupported parts will take on Repeated and Remark exam. The requirement for the final written part of a Repeated and Remark exam is a pre-passed practical part of the exam.

**The formation of the final mark**

The total number of points earned, obtained through all forms of knowledge, 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	<b>Obligatory:</b> – Braddom RL. Physical Medicine and Rehabilitation. 5rd edition. Philadelphia: W.B.Saunders Company; 2015.  <b>Additional:</b> – Frontera W, DeLisa J, Gans B, Walsh N, Robinson L. De Lysa's Physical Medicine and Rehabilitation. Lippincott Williams & Wilkins; 2013.		
7. Remarks	All parts of course program is obligatory. Valid sanitary booklet and proper clothing are mandatory for student's attendance to exercises. Fixing absences from classes is in accordance with legal regulations. Consultation period for students is each working day pre-reserved with the teaching staff via e-mail: <a href="mailto:narcisa.vavra@mf.unsa.ba">narcisa.vavra@mf.unsa.ba</a>		

## COURSE PLAN: PHYSICAL MEDICINE AND REHABILITATION

Week 10.	The form of teaching	Number of hours
Friday	<p><b>Lecture:</b> Introduction, Physical medicine, Rehabilitation medicine, relationships with other clinic disciplines. The diagnostic process and Physical therapy. Professional rehabilitation. Social rehabilitation. Kinesitherapy.</p> <p><b>Practical:</b> Taking a medical history – specific approach, tests and scales. Functional assessment of the locomotor system. Testing of Activities of Daily Living (ADL). Choosing a rehabilitation program.</p>	<p>2</p> <p>3</p>
Week 11.	The form of teaching	Number of hours
Monday	<p><b>Lecture:</b> Electrotherapy, phototherapy, laserotherapy – physical and biological characteristics, indications and contraindications. Thermotherapy, hydrotherapy, balneotherapy, magnetotherapy, transcutaneous electrical nerve stimulation (TENS), manual therapy – physical and biological characteristics, indications and contraindications.</p> <p><b>Practical:</b> Neck, shoulder and upper extremity disorder, evaluation and treatment. Practical application of electrotherapy, phototherapy, laserotherapy.</p> <p>Low back, hip and lower extremity disorder, evaluation and treatment. Practical application of thermotherapy, hydrotherapy, balneotherapy, magnetotherapy, TENS, manual therapy.</p>	<p>3</p> <p>3</p>
Tuesday	<p><b>Lecture:</b> Principles of neurological rehabilitation - Upper Motor Neuron diseases. Stroke rehabilitation, rehabilitation of patients with multiple sclerosis and Parkinson's disease. Principles of neurological rehabilitation - Lower Motor Neuron diseases.</p> <p><b>Practical:</b> Rehabilitation program in patients with Upper Motor Neuron diseases.</p>	<p>3</p> <p>3</p>
Wednesday	<p><b>Lecture:</b> Principles of Traumatology and Orthopaedic rehabilitation (tissue injuries, fractures, endoprosthesis implantation, amputation of limb, congenital hip dislocation, scoliosis). Principles of rehabilitation of rheumatic disease (degenerative diseases of the spinal column and large joints, cervical and lumbal pain syndrome, rheumatoid arthritis, Morbus Bechterew).</p> <p><b>Practical:</b> Rehabilitation program in patients with Lower Motor Neuron diseases.</p>	<p>3</p> <p>3</p>

Thursday	<b>Lecture: Partial exam 1</b>	2
	<b>Practical:</b> Rehabilitation program in Traumatology and Orthopaedic.	4
Friday	<b>Lecture:</b> Principles of cardiac rehabilitation (clinical assessment of functional capacity in cardiac patients, principles of rehabilitation in patients with AIM and patients with Peripheral Vascular Diseases).	3
	<b>Practical:</b> Rehabilitation program in patients with rheumatic diseases. Rehabilitation program in cardiac patients.	3
<b>Week 12.</b>	<b>The form of teaching</b>	<b>Number of hours</b>
Monday	<b>Lecture:</b> Principles of pediatric rehabilitation. Principles of rehabilitation in patients with osteoporosis.	2
	<b>Practical:</b> Kinesitherapy program in patients with cerebral palsy.	2
	<b>Lecture: Partial exam 2</b>	2
Tuesday	<b>Practical exam</b>	4
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	

Code: <b>MFSE 1106</b>	Course title: <b>OCCUPATIONAL MEDICINE</b>		
Level: <b>undergraduate</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>2</b>
Status: <b>obligatory</b>	Total contact hours: <b>30</b>		
Prerequisites:	<b>According to the Study Regulations</b>		
Lecturers:			
1. Overall aim	The objective of the course is to understand the significance and role of occupational medicine in science, clinics, work psychology, ergonomics, worker health care, the risks associated with workplace conditions, work health effects, and the harmful effects originating from the working environment.		
2. Course contents	To enable students to work independently on improving safety and health protection of workers. Preventing injuries at work, occupational diseases and other work-related illnesses.		
3. Learning outcomes (Knowledge, skills and competences)	<p>Throughout the course, students will adopt the following knowledge:</p> <p><b>Module 1. Occupational Psychology</b></p> <p>The goal of the module is to familiarize the student with the meaning of work in an individual's life, characteristics that determine success in work (competence, skills and knowledge). Nature and the importance of motivation and stress at work.</p> <p><b>Module 2. Occupational Physiology</b></p> <p>Objective of the module is to familiarize student with the function of an organism related to a specific professional work, methods of testing the functional ability of the respiratory and cardiovascular system in occupational medicine, energy consumption in working professions and the metabolic response to physical load.</p> <p><b>Modul 3. Protection And Harmfulness Of The Workplace</b></p> <p>Modul aim is to teach the student the purpose of workplace safety and to know which preventive measures must be taken in order prevent the illness / injury of workers exposed to physical, chemical or biological agents, removal of potentially dangerous factors in the workplace.</p> <p><b>Modul 4. Work-Related Illnesses</b></p> <p>Through this module students will be introduced with work-related illnesses, which represent a very wide spectrum of illnesses that are in some ways (not always causal), related to the vocation or working</p>		

	<p>conditions, and ethyology of multicausal diseases.</p> <p><b>Modul 5. Occupational Diseases</b></p> <p>Module aim is to acquaint students to the methods of diagnosing professional illness with a special focus on working anamnesis and laboratory examination. Organ and system diseases.</p> <p><b>Modul 6. Factors Of Physical Nature</b></p> <p>Module aim is to teach students how factors of physical nature (noise, vibration, elevated / reduced temperature at the workplace, ionizing and non-ionizing radiation) can lead to workers' disease, and learn what measures can be applied and workplace risk assessment.</p> <p><b>Module 7. Factors Of Chemical Nature</b></p> <p>Module aim is to give students an idea of how chemical substances can affect the health status of workers, which diseases can appear due to chemical substances and the importance of removing potentially dangerous factors in the workplace.</p> <p><b>Module 8. Factors Of Biological Nature</b></p> <p>Module goal is to teach students which workplace can be a possible source of the disease, the cause can be viruses, bacteria, fungi and parasites, the importance of preventive measures, improvement of working conditions and organization of work.</p> <p><b>Module 9. Work Ability Evaluation</b></p> <p>Module goal is to introduce students to the assessment of work ability to match the biological properties of the organism with the job requirement and that it aims to preserve the health of employees, preventing disability, the occurrence of occupational diseases and work-related diseases, all as a consequence, increasing the productivity of labor. Legislation in occupational medicine.</p> <p><b>Module 10. Workplace Health Promotion</b></p> <p>Module goal is inform students how risky work habits, high levels of stress, and inflexible work arrangements exemplify factors that have a detrimental effect on a healthcare worker. A high level of work</p>
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	<p>absenteeism due to illness is not the only indicator of poor health in the workplace, it is also a sign of low productivity and success - issues that have a direct impact on the well-being of the organization.</p> <p><b>Module 11. Absentism</b></p> <p>Module goal is to inform the student that absenteeism may be due to illness, accident at work or out of work, care or escorting a sick family member, and absenteeism due to isolation.</p> <p><b>Module 12. Presentism And Work Motivation</b></p> <p>The goal of the module is to teach the student what is presentism, the importance of knowing the physical and mental state of workers in maintaining work capacity.</p> <p>Through the teaching of the "Occupational Medicine" course, students will adopt <b>following skills</b>:</p> <p><i>Students need to learn how to perform following skills:</i></p> <ul style="list-style-type: none"> <li>- <i>Take correct working history</i></li> <li>- <i>Apply all methods of physical examination (palpation, percussion, auscultation)</i></li> <li>- <i>laboratory results interpretation</i></li> <li>- <i>electrocardiograms interpretation</i></li> <li>- <i>Chest X-ray interpretation</i></li> <li>- <i>spirometry interpretation</i></li> <li>- <i>otoscopy work</i></li> <li>- <i>audiometry interpretation</i></li> <li>- <i>vestibulometry interpretation</i></li> <li>- <i>ergometry performance (stress test)</i></li> <li>- <i>performance of Stereopsis tests</i></li> <li>- <i>Distant and near vision</i></li> <li>- <i>Determination of heavy metals in blood and urine samples (Pb, Mn, Zn, Cd) – AAS</i></li> <li>- <i>psychoactive substances analysis (methadone, marijuana, cocaine, amphetamine and alcohol in the blood and urine)- GC-MS</i></li> <li>- <i>noise, vibration, lighting reading on the machines for the working environment hygiene</i></li> </ul>
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	<p>After course listening student will adopt following attitudes:</p> <ul style="list-style-type: none"> <li>- importance and role of occupational medicine</li> <li>- the importance of a proper working ability assessment, the right protection of workers from workplace injuries and legislation in occupational medicine</li> <li>- for independent work a doctor must be able to evaluate the functions of the organism associated with the workplace</li> <li>- the necessity of continuous improvement of the knowledge and quality of their work</li> </ul>
4. Teaching methods	<p>Teaching will be done through:</p> <ul style="list-style-type: none"> <li>- Lectures: 10 hours</li> <li>- Practicals: 10 hours</li> <li>- Seminars: 10 hours</li> </ul>
5. Methods of knowledge assessment and examination	<p>Continuous examination of knowledge will be carried out within the course of teaching.</p> <p><b>Seminar</b></p> <p>During the seminar students' work will be continuously monitored through interactive lectures. Each student will be evaluated at the end of the semester by a grade (score) of 0-10 which will be added to the total number of points before concluding the final grade. In order to pass the seminar part, student must score 6 points at least.</p> <p><b>Practical exam:</b></p> <p>Written examination is in the form of a test (MCQ - multiple answers are possible), 30 questions, each correct answer carries 1 point. The maximum number of possible points is 30. In order to pass the exam, the student must have at least 55% of the correct answers, or 16.5 points. The number of gained points is added in forming the final grade.</p> <p><b>Partial exam:</b></p> <p>The student first takes practical exercises assessment knowledge and skills test. The exam is conducted in the form of a written test (MCQ questions - multiple answers are possible), 40 questions, each correct answer carries 1.5 points. The maximum number of gained points is 60. In order to pass the exam, the student must have at least 55% of the correct answers (33 points).</p>



	<p><b>Final exam:</b></p> <p>During the final exam, the student takes the material that he did not previously pass during the course. Final exam is conducted and evaluated according to the previously defined methods of knowledge testing.</p> <p><b>Re-testing and Make-up examination</b></p> <p>Re-testing and Make-up examination are conducted according to the previously defined methods of Final examination.</p> <p>The final grade is formed by summing up all the points scored for each form of knowledge testing.</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>&lt; 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	<ul style="list-style-type: none"><li>- McCunney RJ. A practical approach to occupational and environmental medicine 2nd edition. Philadelphia: Lippincott Williams &amp; Wilkins, 2003.</li><li>- McCunney RJ, Rountree PP. Occupational and environmental medicine: self-assessment review. 2nd edition, Philadelphia: Lippincott Williams &amp;</li></ul>																					

	Wilkins, 2004. Bove AA.
7. Remarks	Pre-agreed consultations are obligatory, and can be scheduled with the Institute's secretary.

## COURSE PLAN: OCCUPATIONAL MEDICINE

Days	Form of Instructions and materials	Number of classes
Monday	Lectures: Definition, role and importance of Occupational medicine. Tasks and organization of Occupational medicine. Professional damage and preventive inspections. Basic concepts of physiology and psychology of work.	3
	Seminar: Work psychology, importance of motivation at work. Physiology of work, fatigue and stress tests. Protection and harmfulness in the workplace. Work-related illnesses.	3
Tuesday	Lectures: Occupational diseases. Professional traumatism. Work ability assessment. Work-related illnesses. Absenteeism and presentism.	3
	Practice: Assessment of working ability, type and character. Recording of working history. Professional traumatism and injuries at work. Personal protective equipment, division and character.	3
Wednesday	Lectures: Introduction to professional pathology (factors of chemical, physical and biological nature, professional respiratory tract diseases)	3
	Seminar: Occupational diseases. Occupational skin damage. Occupational malignant diseases.	3
Tuesday	Seminar: Workplace health promotion. Ethics in occupational medicine. Management in occupational medicine.	3
	Practice: Occupational illnesses. Toxicology. Determination of heavy metals in blood and urine of workers. Analysis of psychoactive substances on GC-MS. Ergonomic assessment of the workplace. Protection and harmfulness in the workplace.	3
Friday	Practice: Noise and vibration. Working environment - microclimate, temperature, humidity and air flow velocity, heat indexes. Determination of air pollution, sampling of air, determination of concentration of gases, vapors and particles. Noise and vibration readout on the devices for work environment hygiene.	4
		2
<b>Weeks. 17/18</b>	<b>Final exam (regular examination term)</b>	
<b>Weeks 19/20</b>	<b>Final exam (make-up examination term)</b>	
<b>September</b>	<b>Final exam (September examination exam)</b>	

Code: <b>MSFE 1107</b>	Course title: <b>SOCIAL MEDICINE AND ORGANIZATION OF HEALTH CARE 2</b>		
Level: <b>preclinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>2</b>
Status: <b>obligatory</b>	Total contact hours: <b>30</b>		
Lecturers:	<b>Associated professor Amela Džubur-Alić, MD PhD</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
1. Overall aim	The aim of the course is to provide students with basic knowledge of social- aspects of the disease and the response of society to its presence and consequences before you commit to exclusively clinical work		
2. Objective	The objective of this course is to understand the social and medical aspect of the leading diseases in relation to the individual and the community and to understand the way society is reacting to the presence of disease and disability among different population groups.		
3. Learning outcomes (Knowledge, skills and competences)	<p>The following topics will be covered during the Modules:</p> <p><b>Modul. 1. The leading diseases of the population</b> The aim of this module is to learn about the most common mass diseases in the world and the strategies how to deal with them, as well as surveillance and evaluation of their occurrence.</p> <p><b>Modul 2. The state's reaction to illness and disability of an individual or group</b> The aim of this module is to familiarize with different models of the health care organization and the assessment of its quality.</p> <p><b>Modul 3. Social-medical consequences of disease and disability</b> The aim of this module is to determine the social and medical consequences of disease and disability in different populational, vulnerable and nozologic groups.</p> <p>After successfully completing the course, students will understand the social aspect of the leading medical illness in relation to the individual and health of population as well as understand the way the reaction of society to the presence of illness and disability among different population groups.</p> <p>Students will be able to set accurate and rapid diagnosis of the disease they need to know the social medical determinants of health and disease. Successful resolution of the leading health problems can be achieved within the context of the whole community</p> <p>The success of the measures taken by the doctor depends not only on his knowledge and skills, but also on the degree of influence of the factors of society and the environment to solve health problems, such as a system of organizing health care, access to health insurance, the system of payment of medical services, the quality of health services etc.</p> <p>Through the lectures and seminars the students will gain following knowledge and competences:</p> <ol style="list-style-type: none"> <li>1. Understanding the social aspect of the leading medical illness in relation to the individual and health of population</li> <li>2. Understanding strategies, monitoring and evaluation in public health</li> </ol>		

	<p>3. Recognising social-medical consequences of disease and disability</p> <p>4. Health care policy in Bosnia &amp; Herzegovina</p> <p><b>Through the practical work students will acquire following skills:</b></p> <p>1. Monitoring of the disease in the community</p> <p>2. Finding sources of adequate data pronalaženje</p> <p>3. Determine the types of needs and requirements of the individual for health protection</p> <p>4. Testing activities of the health care system</p> <p>5. Methods of drawing up a questionnaire on the quality assessment of doctors</p> <p>6. Formulation and solution of certain professional problems - making health care programs</p> <p>7. Use of different methods in the health care of vulnerable groups (women, persons with disabilities, persons senior age)</p>															
4. Teaching methods	<p>Lectures: 15 hours</p> <p>Practical work: 15 hours</p>															
5. Method of knowledge assessment and examination	<p><b>Practical exam</b></p> <p>Practical examination is performed to check the skills that are learned. The total score for the practical examination is maximum 30 points and the minimum 17 points. The requirement for a student to enter the Final exam is completed and submitted practicum to the responsible assistant.</p> <p><b>Final exam</b></p> <p>Final exam is in written form, consisting of a practical task and a theoretical part. On final exam, the student can win a maximum of 70 and minimum of 35 points.</p> <p>The first part of Final exam refers to the practical task. The successfully completed task carries a maximum of 20 points, minimum 10 points. The theoretical part is in written form, consisting 50 MCQ questions and carries a maximum of 50 points, and minimum of 25 points.</p> <p><b>Remedial exam/September exam term</b></p> <p>Remedial exam/September exam term are conducted according to the previously defined criteria of the Final examination.</p> <p><b>Determining final grade</b></p> <p>The total number of points scored in all forms of knowledge testing is translated into final grade as follows:</p> <table><tr><th>Grade</th><th>Number of points</th><th>Grade description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>Remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good, but with significant shortcomings</td></tr></table>	Grade	Number of points	Grade description	10 (A)	95-100	Remarkable success without mistakes or with minor errors	9 (B)	85-94	Above average, with some mistakes	8 (C)	75-84	Average, with subtle errors	7 (D)	65-74	Generally good, but with significant shortcomings
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7 (D)	65-74	Generally good, but with significant shortcomings														

	6 (E)	55- 64	Meets the minimum criteria
	5 (F,FX)	< 55	Does not meet the minimum criteria
6. Literature	<p>Obligatory:</p> <ol style="list-style-type: none"> <li>1. Roberts M, Hsiao W, Berman P, Reich M. Getting health reform right. Washington: The World Bank Institute and Harvard School of Public Health, 2001.</li> <li>2. Robinson J, Elkan R. Health Needs Assessment. UK: Churchill Livingstone; 2002.</li> <li>3. Mossialos E, Dixon A, Figueras J, Kutzin J. Funding health care: options for Europe. European Observatory on Health Care Systems Series. Buckingham, Philadelphia: Open University Press; 2002.</li> </ol>		
7. Remark	<p>All types of the course are mandatory.          Fixing absences from classes should be in accordance with legal regulations.          Consultations will be provided at the Department of Social Medicine on the Medical Faculty University of Sarajevo every working day from 12.30 am to 1.15 pm with advance notice via e-mail : <a href="mailto:amela.dzubur@mf.unsa.ba">amela.dzubur@mf.unsa.ba</a></p>		

## COURSE PLAN: SOCIAL MEDICINE AND ORGANIZATION OF HEALTH CARE 2

Week 13.	Form of teaching	Number of hours
Day 1.	<b>Lecture:</b> Assessment of the health status of the population, evaluation and monitoring and planning activities on health promotion.	3
	<b>Practical classes:</b> Needs and requirements system of health care - interviewing ten patients; proposal for health care plan - set of data for analysis of external and internal environment.	3
Day 2.	<b>Lecture:</b> Socio-medical aspects of leading mass diseases in the world: primary, secondary and tertiary prevention; individual and population strategies for their resolution.	3
	<b>Practical classes:</b> Case study of disease / disability / death on example of one patient; Preparation of a health education course; accepting knowledge, attitude and practice; preparation of a health-improving prescription.	3
Day 3.	<b>Lecture:</b> Organization and management in health care: diagnostics, therapy and rehabilitation.	3
	<b>Practical classes:</b> Overview of patient's path through the health care system; Health system action study.	3
Day 4.	<b>Lecture:</b> Quality of health care; definition, type of quality, safety, quality assessment, quality assessment criteria, good practice guidelines and clinical pathways for most common diseases.	3
	<b>Practical classes:</b> The health care user's position in relation to adequacy and satisfaction of provided health care - ten patient survey.	3
Day 5.	<b>Lecture:</b> Most common health problems and disabilities of certain populous and vulnerable population groups; health care organization, problem solving strategies.	3
	<b>Practical classes:</b> Health care program for the population group; health care program for a nosologic group.	3
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (Septembar examination term)</b>	

Code: <b>MFSE 1108</b>	Course title: <b>INTRODUCTION TO SCIENTIFIC METHODS 2</b>		
Level: <b>Undergraduate</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>2</b>
Status: <b>Core</b>	Total contact hours: <b>30</b>		
Prerequisites: <b>According to the study regulations</b>			
Lecturers: <b>Prof Semra Čavaljuga MD MSc DSc; Prof Maida Todić-Rakanović MD MSc DSc; Prof Asija Začiragić MD MSc DSc; Assistant Prof Lejla Burnazović-Ristić MD MSc DSc; Senior TA Lejla Džananović MD MSc; Senior TA Sanita Maleškić MD</b>			
1. Overall aim	The aims of this course are the following: <ul style="list-style-type: none"><li>- Education on how to choose appropriate scientific research methodology, to design and plan research, and to properly interpret research results.</li><li>- Developing an awareness of the necessity of an ethical and detailed approach to the planning and conduction of biomedical research.</li></ul>		
2. Course contents	The student should acquire sufficient knowledge of research methodologies in medicine (pre-clinical and clinical) and gain an understanding of the different forms of study designs and the basics of appropriate representation and interpretation of research results. The student will be provided with a foundation necessary for planning and designing a research project in medicine.		
3. Learning outcomes (Knowledge, skills and competences)	<p>Through this course, students will acquire the following knowledge:</p> <p><b>Module 1. Experimental-Laboratory Medicine</b></p> <p>The aim of this module is to gain knowledge of the features of <i>in vivo</i> and <i>in vitro</i> experiments; the specifics of design, problem definition and the method of conducting, evaluating and presenting the experiment; as well as animal and other models used for experiments. The student will also gain an understanding of all other aspects of laboratory work (methodological, safety-related), as well as the ethical principles and regulatory rules in experimental work.</p> <p><b>Module 2. Epidemiological studies and Clinical Trials</b></p> <p>The aim of this module is to gain knowledge of the types of research in biomedicine; study design; statistical sample and sampling procedures; defining research problems; setting research goals; formulation of the hypothesis; methodology of protocol design; data collection and processing; methods of presenting the research results. The students will gain an understanding of ethical principles and regulations in biomedical research and of the critical evaluation of facts presented in a scientific research project.</p> <p>Through this course a student will gain the following skills:</p> <p><i>Skills that students should master after the lectures of this course:</i></p> <ul style="list-style-type: none"><li>• Appropriate formulation of scientific and biomedical problems</li></ul>		



	<ul style="list-style-type: none"><li>• Knowledge of the features of study design in biomedicine</li><li>• Research planning, data collection and knowledge of the methods of interpreting and presenting research results</li><li>• Critical evaluation of available evidence and effective use of collected information in solving a defined research problem</li></ul> <p><i>Attitudes a student should master after the completion of this course:</i></p> <ul style="list-style-type: none"><li>• Necessity of an interdisciplinary approach to scientific research.</li><li>• Respect for ethical criteria and standards in biomedical research.</li><li>• A comprehensive and systematic approach to research planning and conduct.</li></ul> <p>Necessity of critical thinking in scientific work and in clinical practice.</p>									
4. Teaching methods	<ul style="list-style-type: none"><li>– Lectures: 15 hours</li><li>– Seminars: 15 hours</li></ul>									
5. Method of knowledge assessment and examination	<p>Through the course, continuous knowledge assessment will be carried out through:</p> <ul style="list-style-type: none"><li>– Seminar paper – two (2) in total</li><li>– Oral exam.</li></ul> <p>Seminar paper should be written based on individual and group work within a group of students, on topic provided during the course of lectures. Oral exam consists of presenting one of the written seminar papers (of students' choice) and answering teacher's questions regarding the particular topic of the seminar paper / presentation / matter taught through the course of lectures.</p> <p>The final grade is calculated according to points given for every knowledge assessment form:</p> <ul style="list-style-type: none"><li>- Seminar paper I – 30% of total points</li><li>- Seminar paper II – 30% of total points</li><li>- Oral exam – 40% of total points.</li></ul> <p>The final grade is calculated as a pondered arithmetic mean of all grades given through this course.</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></table>	Grade	No of points	Grade description	10 (A)	95-100	Exceptional with minor errors	9 (B)	85-94	Above average with few errors
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	6 (E)	55-64	Meets minimal criteria
	5 (F, FX)	< 55	Fails to meet minimal criteria
<i>In order to be given a passing final grade, student must obtain a passing grade from all forms of knowledge assessment.</i>			
6. Literature	<b>Required</b> <ul style="list-style-type: none"> <li>– Course hand-outs</li> <li>– Group of authors. Research and Scientific Work in Medicine. <b>To be published by Faculty of Medicine University of Sarajevo – in preparation.</b></li> </ul> <b>Extended</b> <ul style="list-style-type: none"> <li>– Rosenbaum P. Design of Observational Studies. Springer Science Business Media. LLC 2010.</li> <li>– Chow SC &amp; Liu JP. Design and analysis of Clinical Trials. J Wiley&amp; Sons Inc. New Jersey. 2004.</li> <li>– Piantadosi S. Clinical Trials A Methodologic Perspective. J Wiley&amp; Sons Inc. New Jersey. 2005.</li> </ul>		
7. Remarks	Student office hours are published in a separate schedule which can be found on the Department's notice-board and on faculty website. Pre-agreed consultations are obligatory, and can be scheduled with the Department of Epidemiology and Biostatistics's secretary or via e-mail: <a href="mailto:epidemiologija@mf.unsa.ba">epidemiologija@mf.unsa.ba</a> .		

## COURSE PLAN: INTRODUCTION TO SCIENTIFIC METHODS 2

Weeks	Form of Instructions and materials	Number of classes
Week 1.	<b>Lecture:</b> Ethical and safety principles in experimental biomedical research. Good laboratory practice	2
Week 2.	<b>Lecture:</b> Fundamentals of experimental medicine, <i>in vivo</i> and <i>in vitro</i> experiment technique	2
Week 3.	<b>Seminar:</b> Developing a research project in experimental medicine: topic selection, formulation and definition of research problem	2
Week 4.	<b>Seminar:</b> Developing a research project in experimental medicine: setting of research goals and hypothesis, defining research design and methodology	2
Week 5.	<b>Seminar:</b> Developing a research project in experimental medicine: methods of collection and evaluation of research results	2
Week 6.	<b>Seminar:</b> Developing a research project in experimental medicine: methods of presenting research results and critical evaluation of facts arising from research	2
Week 7.	<b>SEMINAR WORK 1</b>	2
Week 8.	<b>Lecture:</b> Ethical principles and regulations in clinical research. Good clinical practice.	2
Week 9.	<b>Lecture:</b> Types of research, research design and methodology, forming a research sample.	2
Week 10.	<b>Seminar:</b> Developing a research project in clinical medicine: topic selection, formulation and definition of research problem.	2
Week 11.	<b>Seminar:</b> Developing a research project in clinical medicine: setting research goals and hypothesis.	2
Week 12.	<b>Seminar:</b> Developing a research project in clinical medicine: defining research design and methodology.	2
Week 13.	<b>Seminar:</b> Developing a research project in clinical medicine: methods of collection and evaluation of research results.	2
Week 14.	<b>SEMINAR WORK 2</b>	2
Week 15.	<b>ORAL EXAM</b>	2
Weeks. 17/18	<b>Final exam (regular term)</b>	
Weeks 19/20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination exam)</b>	

Code: <b>MFSE 1109</b>	Course title: <b>CLINICAL EPIDEMIOLOGY</b>		
Level: <b>undergraduate</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>Biostatistics 2</b>		
Lecturers: <b>Prof. Semra Čavaljuga, MD PhD; Assitant professor Enisa Ademović, MD MSc; Senior assistant Lejla Džananović, MD MSc</b>			
1. Overall aim	Objectives of this course are: 1. Understanding of basic principles of evidence based medicine/clinical epidemiology, needs for it in today's medical practice and how hypothesis in clinical medicine are tested; 2. Developed critical perspectives of publicized studies results; 3. Develop critical thinking and skills in study designing and conduction of individual studies; 4. Recognize and apply various options in clinical epidemiological studies designing; 5. Identify potential sources of errors and biases in epidemiological clinical studies.; 6. Manipulation and interpretation of epidemiological data in clinical practice. The purpose of this course is that students introduce themselves with principles of clinical epidemiology /randomized and non-randomized clinical studies. This course will help students to develop clinical epidemiology skills and knowledge known as disease management in individuals as well as for populations.		
2. Course contents	<p>Students should master the following knowledge:</p> <p><b>Module 1. Overview of basic principles in study design:</b></p> <ul style="list-style-type: none"><li>a. observational study design (cross-sectional, cohort, case-control, ecological; matching)</li><li>b. experimental study design (randomized vs. nonrandomized)</li></ul> <p>The objective of Module is to introduce the type of studies used in medical research to evaluate the association of a certain exposure and outcome, with respect to the type of exposure in question (observational vs. experimental studies), basics of these studies' design, in order to provide answers to questions from clinical practice.</p> <p><b>Module 2. Observational studies analysis, risk assessment, confidence interval (CI)</b></p> <p>The objective of this Module is to introduce the means and methods of evaluation of association between exposure and outcome within a particular observational epidemiological study, by calculation and interpretation of appropriate measure of association and impact – based on study's objectives and stated hypotheses – with elaboration on their statistical significance, in order to provide answers to questions from clinical practice.</p> <p><b>Module 3. Experimental studies analysis principles, the importance of ITT (intention-to-treat) analysis.</b></p> <p>The objective of this Module is to introduce the means and methods of evaluation of the effect of a particular intervention on the outcome in question within an experimental study, with basics of analysis of such data, in order to provide answers to questions from clinical practice.</p> <p><b>Module 4. Problems within a research (validity, precision, bias)</b></p> <p>The objective of this Module is to introduce the basic errors arising in epidemiological study design and implementation, i.e. the terms such as validity (internal and external), precision, and bias; the effects of these errors on study</p>		

	<p>results, as well as means and methods of their minimization and elimination.</p> <p><b>Module 5. Evidence based medicine (systematic review with and without meta-analysis)</b>  The objective of this Module is to introduce the basic principles of evidence-based medicine, i.e. the use of adequate methods to answer research questions in clinical medicine, by mastering the basic principles of writing a systematic literature review and performing meta-analysis, in order to provide answers to questions from clinical practice.</p> <p><b>Module 6. Introduction to preventive epidemiology</b>  The objective of this Module is to introduce the basics of preventive epidemiology – above all design and analysis of diagnostic and screening tests performance in clinical epidemiology, by calculating and interpreting performance characteristics of a test, developing and interpreting the ROC curve, as well as pros and cons of simultaneous and sequential use of multiple screening tests on an individual.</p> <p><b>Module 7. Epidemiology of chronic diseases with epidemiological studies analysis and meta-analysis</b>  The objective of this module is to introduce the use of epidemiological methods in study of chronic diseases, as well as the correct interpretation of the results of these studies, accentuating the use of survival analysis (hazard, hazard ratio, use of Cox regression).</p>
3. Learning outcomes (Knowledge, skills and competences)	<p><i>In individual and group session's students will develop the <b>following skills and attitudes:</b></i></p> <ul style="list-style-type: none"> <li>- medical literature critical judgment through examples from general medicine, preventive medicine, public health and particularly in clinical medicine with understanding of causality of mass chronic diseases</li> <li>- how to judge results of modern studies related to treatment, diagnostics, screening programmes as well as basics of randomized clinical studies.</li> </ul>
4. Teaching methods	<p>Lectures are organised as «sandwich» - exchange of collective learning and individual learning thru interactive lecturer approach.</p> <p>All exercises are organised interactively, with examples coming from real practice.</p> <p>Student group are composed of 4 students each. Each of the groups will work on a project development throughout entire course. This project will be presented publicly to all students at the end of the course.</p>
5. Method of knowledge assessment and examination	<p>Knowledge assessment will be performed through:</p> <ul style="list-style-type: none"> <li>– Activity participation in course/classes</li> <li>– individual work on seminar paper/project on given topic with consultation with course professor and assistants with presentations</li> <li>– written exam based on MCQ methodology with 4-5 given answers on 2/3 of the questions; 1/3 of the questions will be in the essay form or calculation. It will be organized after the completion of lectures.</li> <li>– oral final exam will be organized for students wanting a higher grade or exceptional students.</li> </ul> <p>Grading will be performed by points given for every part of the studying activity</p>

	<p>and knowledge testing during the semester and on the final exam, by the following structure:</p> <ul style="list-style-type: none"><li>– activity during classes 20% of the final grade</li><li>– written exam 40% of the final grade</li><li>– seminar paper and presentation 40% of the final grade</li></ul> <p>Final grade will be calculated as a pondered arithmetic mean of all grades given throughout semester (i.e. joint arithmetic mean).</p> <p>Grading of writing parts of the exam will be performed with respect to rules and regulations of syllabi harmonization of Bologna studying for every single exam term as following:</p> <table><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>&lt; 55</td><td>Fails to meet minimal criteria</td></tr></table> <p><u><i>In order to be given a passing final grade, student must obtain a passing grade from all forms of knowledge testing.</i></u></p>	Grade	No of points	Grade description	10 (A)	95-100	Exceptional with minor errors	9 (B)	85-94	Above average with few errors	8 (C)	75-84	Average, with noticeable errors	7 (D)	65-74	Good, with significant errors	6 (E)	55-64	Meets minimal criteria	5 (F, FX)	< 55	Fails to meet minimal criteria
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6. Literature	<p><b>Required:</b></p> <ul style="list-style-type: none"><li>- Course Handouts</li></ul> <p><b>Additional:</b></p> <ul style="list-style-type: none"><li>– David L Sackett, Gordon H Guyatt, R Brian Haynes, Peter Tugwell. Clinical Epidemiology. LWW; 2005.</li><li>– Friedgman LM, Furberg C, DeMets DL. Fundamentals of clinical trials, 3rd ed. St Louis, MS: Mosby; 1996.</li><li>– Pogue J, Yusuf S. Overcoming the limitations of current meta-analysis of randomised controlled trials. Lancet 1998;35:47-52.</li><li>– David L. DeMets, RobertM.Califf. Lessons Learned From Recent Cardiovascular Clinical Trials: Part I. Circulation. 2002;106:746-751.</li><li>– David L.DeMets, Robert M. Califf, Lessons Learned From Recent Cardiovascular Clinical Trials: Part II. Circulation. 2002;106:880-886.</li><li>– Robert M. Califf, DavidL.DeMets. Principles from Clinical Trials Relevant to Clinical Practice: Part I. Circulation. 2002;106:1015-1021.</li><li>– Robert M.Califf, DavidL.DeMets. Principles from Clinical Trials Relevant to Clinical Practice: Part II. Circulation. 2002;106:1172-1175.</li><li>– Rothman, KJ. Modern Epidemiology 3<sup>nd</sup> Edition, Lippinkott, Williams and Willkins; 2008.</li><li>– Kleinbaum DG, Kupper LL, Morgenstern H. Epidemiologic Research: Principles and Ouantitative Methods. New-York: Wiley; 1982.</li></ul>																					

7. Remark	<p><b>It is forbidden to bring unauthorized copies of literature to classes!</b></p> <p>All forms of classes are obligatory. Only students who have a proper uniform can attend exercises. Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultations are conducted every day in terms of work with students and with prior announcement to the Secretary of the Chair or at the e-mail address: <a href="mailto:epidemiologija@mf.unsa.ba">epidemiologija@mf.unsa.ba</a></p>
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### COURSE PLAN: CLINICAL EPIDEMIOLOGY

Week 15.	The form of teaching	Number of hours
Tuesday	<b>Lecture:</b> Theoretical basis of clinical epidemiology. Causality. Principles of study design. Bias in analytical epidemiology with minimization. Effect modification and confounding with stratification. Evidence Based Medicine (EBM).	2
Wednesday	<p><b>Lecture:</b> Measures of the frequency of the disease and the measure of association along with the theoretical basis of basic probabilities of probability. Experimental studies: design and analysis; tests, p-value, confidence intervals (CI).</p> <p><b>Practical exercises:</b> Practical elaboration of biases and confounding in epidemiological studies. Principles of EBM. Practical elaboration of study design and calculation of disease incidence and association measures (OR, RR, AR, RRR, ARR, NNT, NNH) in the appropriate statistical software package.</p> <p><b>Project:</b> Division of the topic of seminar papers.</p>	3  3
Thursday	<p><b>Lecture:</b> Use and value of diagnostic and screening tests in clinical epidemiology.</p> <p><b>Practical exercises:</b> Practical elaboration of the use of epidemiological hypothesis tests in clinical epidemiology with particular reference to interpretation of results and validity. Calculating and using extrinsic and intrinsic screening parameters. ROC is wrong.</p>	2  4
Friday	<p><b>Lecture:</b> Basics of survival analysis with examples from literature - practice. Meta-analysis.</p> <p><b>Practical exercises:</b> Calculation and application of methods in survival analysis.</p>	3  3
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	



Code:MFSE 1110	Course title: <b>CLINICAL TRIALS IN PRACTICE</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulations</b>		
Lecturers: <b>Assistant Professor Lejla Burnazović-Ristić, MD PhD; Professor Svjetlana Loga-Zec, MD PhD; Associate Professor Maida Rakanović-Todić, MD PhD; Associate Professor Jasna Kusturica, MD PhD; Assistant Professor Aida Kulo Ćesić, MD PhD</b>			
1. Overall aim	The overall aim of the Clinical Trials in Practice Course is to gain an understanding of types and features of clinical trials drugs and medical devices as well as the practical implementation of clinical trials using current ethical principles and practice.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p><b>Module 1. Clinical Studies and Good Clinical Practice</b> General designs, concepts and importance of Clinical Trials for new drug development and Healthcare practice. Introduction to Rules and Principles of Clinical Trials planing and conduct.</p> <p><b>Module 2. Investigator tasks and responsibilities</b> Informed consent, Investigational Product, Communication with IRB/IEC, Medical Care of Trial Subject, Compliance with Protocol, Records and Reports, Safety Reporting.</p>		
3.Learning outcomes	<p>The student will master the basic rules of designing and conducting clinical trials of drugs and medical devices. Through active participation in the course, the students will be trained for the conduction of clinical trials in practice.</p> <p><i>Through the lectures the students will gain following knowledge and competences:</i></p> <ol style="list-style-type: none"><li>1. Discover ethical principleas essential for clinical reasearch and basic regulatory requirements.</li><li>2. Learn study designs and features for different types of clinical studies.</li><li>3. Following of study protocols and detailed methods for protocol implementation in practice.</li><li>4. Proper selection of study subjects.</li><li>5. Learn process of the informed consent, principleas of pharmacovigilance specific to clinical studies.</li><li>6. Learn data handling and major responsibilities of investigators, sponsors and monitors in the coduct of clinical trials.</li></ol> <p><i>Through the practical works students will acquire following skills:</i></p> <ul style="list-style-type: none"><li>- Recognize different types and features of clinical trials in practice</li></ul>		

	<ul style="list-style-type: none"><li>- Application of basic rules of Good Clinical Practice in clinical studies</li><li>- Source handling by protocol requirements</li><li>- Reporting of adverse effects in clinical studies</li><li>- Methods of collecting and verifying data from clinical trials</li></ul>																													
4. Teaching methods	Lecturers: 7 hours Tutorials: 13 hours																													
5. Method of knowledge assesment and examination	<p><b>Continuous knowledge and skills assessment</b> Continuous knowledge and skills assessment will be carried out through Partial exams, case studies, PBL sessions.</p> <p><b>Partial exam</b> Partial exam consists of topics covered by Module 1 and is aquired through Seminar/Esay paper.</p> <p><b>Regular final examination term</b> Final exam consist of topics covered by Module 2 and is aquired through 3 Case Studies.</p> <p>Grading will be performed as follows:</p> <table><tr><td>Essay paper</td><td>40% of the final grade</td></tr><tr><td>Case study 1:</td><td>20% of the final grade</td></tr><tr><td>Case study 2:</td><td>20% of the final grade</td></tr><tr><td>Case study 3:</td><td>20% of the final grade</td></tr></table> <p>Grading of writing parts of the exam will be performed with respect to the following rules and regulations:</p> <table><tr><th><i>Grade</i></th><th><i>No of points</i></th><th><i>Grade description</i></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>&lt; 55</td><td>Fails to meet minimal criteria</td></tr></table>	Essay paper	40% of the final grade	Case study 1:	20% of the final grade	Case study 2:	20% of the final grade	Case study 3:	20% of the final grade	<i>Grade</i>	<i>No 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><b>Obligatory:</b></p> <ol style="list-style-type: none"><li>1. Hackshaw A. Aconcise Guide to Clinical Trials, USA. BMJ Books</li><li>2. Machin D. Et al.Textbook of Clinical Trials. USA. John Wiley and Sons. Ltd, 2004.</li></ol>																													

7. Remarks	<p>Presence on lectures is subjected to applicable Rules and Laws.</p> <p>Fixing absences from classes is in accordance with applicable legal regulations.</p> <p>Consultation hours are every day 12.00-13.00 p.m. with mandatory scheduling to the Secretary of Cathedra of Pharmacology, Clinical Pharmacology and Toxicology, or email to: <a href="mailto:lejla.burnazovic@gmail.com">lejla.burnazovic@gmail.com</a></p>

## COURSE PLAN: CLINICAL TRIALS IN PRACTICE

<b>Week 15.</b>	<b>Form of teaching</b>	<b>Number of hours</b>
Tuesday	<b>Lecture:</b> General designs, concepts and importance of Clinical Trials for new drug development and Healthcare practice.	2
Wednesday	<b>Lecture:</b> Introduction to Rules and Principles of Clinical Trials planing and conduct.  <b>Practical classes:</b> Obtaining the Informed consent. Records and Reports in Clinical Trials according to GCP.	2  4
Thursday	<b>Lecture:</b> Investigator responsibilities: Communication with IRB/IEC, Investigational Product.  <b>Practical classes:</b> Safety Reporting.	1  5
Friday	<b>Practical classes:</b> Full compliance with the protocol.  <b>Partial exam</b>	4  2
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (Septembar examination term)</b>	

Code: <b>MFSE 1112</b>	Course title: <b>EMERGENCIES IN OPHTHALMOLOGY</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the study regulation</b>		
Teachers and associates: <b>Professor Emina Alimanović Halilović, MD PhD; Assistant Professor Raif Serdarević, MD PhD; Assistant Edita Dervišević, MD PhD</b>			
1. Overall aim	Introduce students to: - principles of emergency condition treatments in ophthalmology - pathogenesis, clinical presentation, diagnosis and contemporary therapy of emergency conditions in ophthalmology.		
2. Course content	<p>During the course the student will acquire the following <b>knowledge</b>:</p> <p><b>Module 1. Ocular perforating injuries</b> The aim of the Module is to introduce students to etiology, clinical presentation, diagnosis and contemporary therapy methods in such cases.</p> <p><b>Module 2. Physical and chemical injuries to eyes and adnexal trauma</b> The aim of the Module is to introduce the student to the most common physical and chemical injuries to eyes and adnexal trauma: etiology, clinical presentation, diagnosis and therapy.</p> <p><b>Module 3. Acute glaucoma and retinal detachment</b> The aim of the Module is to introduce students to etiology, clinical presentation, diagnosis and therapy in acute glaucoma and rhegmatogenous and traction retinal detachment.</p> <p><b>Module 4. Retinal vascular disease</b> The aim of the Module is to introduce the student to retinal vascular occlusions, etiology, pathogenesis, clinical presentation, diagnosis and contemporary treatment thereof.</p> <p><b>Module 5. Acute optic neuritis</b> In this Module the student should be introduced to etiology, pathogenesis, clinical presentation, diagnosis and therapy of acute retrobulbar neuritis, front and back optic neuropathy and arteritis temporalis (Horton).</p>		
3. Learning outcomes	<p>During the course study the student will master the following <b>skills</b>:</p> <p><i>Skills the student should know to perform in practice (knows how to do):</i></p> <ul style="list-style-type: none"><li>- take proper anamnesis</li><li>- examination of anterior segment of eyeball</li><li>- identify emergency conditions in ophthalmology</li><li>- anterior eye segment washout and foreign content removal</li><li>- administration of adequate local, and if necessary, systemic therapy</li><li>- correct triage of the patient</li></ul> <p><i>Skills the student needs to know (knows how and when):</i></p> <ul style="list-style-type: none"><li>- understanding specific diagnostic procedures used in diagnostics of</li></ul>		

	<p>emergency conditions in ophthalmology</p> <ul style="list-style-type: none"> <li>- Applanation tonometry</li> <li>- Visual field testing</li> <li>- CT analysis of orbital imaging</li> <li>- infusion therapy administration</li> <li>- knowledge of basic wound treatment postulates</li> </ul> <p>Following the completed course in <i>Emergencies in Ophthalmology</i> the student should adopt the following <b>attitude</b>:</p> <ul style="list-style-type: none"> <li>- Correct triage and timely referral of the patient to highly differentiated ophthalmology service may to a large extent ease the consequences of emergency conditions in ophthalmology and reduce number of blind and low vision persons.</li> </ul>
4. Learning methodology	<p>The Course will comprise:</p> <ul style="list-style-type: none"> <li>- Lecture:10 hours</li> <li>- Practical classes:10 hours</li> </ul>
5. Knowledge assessment methodology	<p>Knowledge assessment will be continuously tested during the study course.</p> <p><b>Continuous knowledge testing</b> Continuous knowledge assessment comprises practical and midterm exam.</p> <p><b>Practical exam</b> Practical exam comprises assessment of skills adopted through all Modules, at the end of the course. Evaluation of adopted skill will be performed based on tasks fulfilled in previously defined check lists. Each task carries specific number of points. Maximum number of points which the student can score is 40. For the practical exam to be considered successfully passed the student must score a minimum of 22 points. The total score is added to other scores in determining final grade.</p> <p><b>Partial exam</b> Partial exam is in the form of MCQ test comprising 30 questions which will test knowledge adopted through all Modules. Each correct answer carries 2 points and there is a total of 60 points. In order to considered it successfully passed the student must earn a minimum of 33 points. The total score is added to other scores in determining final grade.</p> <p><b>Final exam</b> At fFinal exam the student will take up parts of the course material which he/she failed to pass during the course. The precondition for taking written part of the Final exam is successfully passed Practical exam. Final exam is conducted and graded based on previously defined knowledge assessment methodology. The total score is added to other scores in determining final grade.</p> <p><b>Repeated exam and Remedial exam</b> If during the semester and at Final exam the student fails to pass Practical and Partial exam, he/she will retake unsuccessfully passed parts of the course at Repeated exam and Remedial exam. The precondition for taking final exam is previously successfully passed Practical exam.</p>

	<p><b>Determining final grade</b></p> <p>Number of totally earned points in two knowledge assessment tests is translated into final grade as follows:</p> <table><tr><th>Grade</th><th>Number of points</th><th>Grade description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>Remarkable success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above average, with some mistakes</td></tr><tr><td>8 (C)</td><td>75 -84</td><td>Average, with subtle errors</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good, but with significant shortcomings</td></tr><tr><td>6 (E)</td><td>55-64</td><td>Meets the minimum criteria</td></tr><tr><td>5 (F, FX)</td><td>&lt; 54</td><td>Does not meet the minimum criteria</td></tr></table>	Grade	Number of points	Grade description	10 (A)	95-100	Remarkable success without mistakes or with minor errors	9 (B)	85-94	Above average, with some mistakes	8 (C)	75 -84	Average, with subtle errors	7 (D)	65-74	Generally good, but with significant shortcomings	6 (E)	55-64	Meets the minimum criteria	5 (F, FX)	< 54	Does not meet the minimum criteria
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5 (F, FX)	< 54	Does not meet the minimum criteria																				
6. Literature	<p><b>Obligatory:</b></p> <ul style="list-style-type: none"><li>- Bagheri N, Wajda B, Calvo C, Durrani A. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Disease, 7th edition. Philadelphia: Wolters Kluwer; 2016.</li></ul> <p><b>Additional:</b></p> <ul style="list-style-type: none"><li>- Kanski JJ, Bowling B. Clinical Ophthalmology: A Systematic Approach, 7th edition. Elsevier-Saunders; 2011.</li><li>- Alimanović Halilović E. Urgentna oftalmologija. Sarajevo: Medicinski fakultet Univerziteta u Sarajevu; 2014.</li></ul>																					
7. Remark	<p>Maximum number of students attending the study course is 25.</p> <p>Lectures and practical classes are carried out in accordance with the course implementing plan at Eye Disease Clinic of the CCUS and in teaching halls of the Faculty of Medicine, University of Sarajevo. Practical classes will be attended by student having valid sanitary booklet and proper uniform.</p> <p>All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultations will be provided at the Department of Ophthalmology every working day from 12.30 am to 1.15 pm with advance notice via e-mail: <a href="mailto:oftalmologija@mf.unsa.ba">oftalmologija@mf.unsa.ba</a> and e-mail: <a href="mailto:emina.alimanovic@mf.unsa.ba">emina.alimanovic@mf.unsa.ba</a></p>																					

## COURSE PLAN: EMERGENCIES IN OPHTHALMOLOGY

Week 15.	Form of teaching	Number of hours
Tuesday	<b>Lecture:</b> Orbital fractures, perforating injuries of cornea and sclera, prolopse of internal eye structures, traumatic cataract, intrabulbar foreign bodies.	2
Wednesday	<b>Lecture:</b> Physical and chemical injuries caused by exposure of an eye and adnexa to: strong light, heat, acids, bases, salts (keratoconjunctiviti solaris, combustio, causoma): clinical picture, diagnosing, first intervention, therapy. Etiology, pathogenesis, clinical picture of acute glaucoma, diagnosis and therapy.  <b>Practical classes:</b> Illustration of characteristic cases on models, footages and in practice. Illustration of characteristic cases on models, footages and in practice. Demonstration of appropriate therapy administration.	3  3
Thursday	<b>Lecture:</b> Etiology, pathogenesis, clinical picture, rhegmatogenous and traction retinal detachment, diagnosis and therapy. Retinal artery and vein occlusions: epidemiology, etiopatogeneza, clinical picture, diagnosing, therapy. Acute retrobulbar neuritis, front and back optic neuropathy, arteritis temporalis (Horton): epidemiology, ethiopathogenesis, clinical picture, diagnosing and therapy.  <b>Practical classes:</b> Illustration of characteristic cases, footages, ultrasound findings, demonstration of conservative and surgical therapy via video link from operation theatre or video clip from the internet. Illustration of characteristic cases through presentations, footages and patients.	3  3
Friday	<b>Practical classes:</b> Case report and finding analysis of: visual acuity, afferent pupillary defect, neurological visual field, audiovestibular tests, brain and orbite magnetic resonance imaging, electroretinogram, Neurologist .....  <b>Practical exam</b>  <b>Partial exam</b>	2  2 2
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (Septembar examination term)</b>	



Code: <b>MSFE 1113</b>	<b>Course title: FORENSIC MEDICINE EXAMINATION OF HUMAN REMAINS</b>		
Level: <b>undergraduate</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>Elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Professor Nermin Sarajlić, MD PhD; Assistant Professor Adis Salihbegović, MD; Assistant Emina Spahić, MD; Assistant Anes Jogunčić, MD</b>			
1. Overall aim	The aim of the course is to provide students with additional knowledge on forensic expertise of exhumed remains. This implies anthropological expertise in order to determine the biological profile, as well as the expertise of injury, mechanism of their occurrence and causes of death.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p><b>Module 1. Distinguishing human from animal bones, orientation of human bones</b> The goal of the Module is to introduce students with the basic techniques of distinguishing between human and animal bones, and with the basic techniques of recognition and orientation of human bones.</p> <p><b>Module 2. Assessing gender and height</b> The goal of the Module is to introduce students with the basic methods of assessing sex and height of exhumed human remains.</p> <p><b>Module 3. Assessing age</b> The goal of the Module is to introduce students with basic methods of the age estimation of exhumed human remains.</p> <p><b>Module 4. Analysis of Injuries and Causes of Death</b> The goal of the Module is to introduce students with the techniques used for differentiation of premortem injuries from postmortem injuries.</p> <p><i>Skills that a student needs to know practically</i></p> <ul style="list-style-type: none"><li>- properly orient the bones of the left and right side of the body,</li><li>- distinguish human from animal bones,</li><li>- sex determination based on characteristics of pelvic bones,</li><li>- sex determination based on the characteristics of skull,</li><li>- evaluate bone age based on pelvic characteristics,</li></ul>		

	<ul style="list-style-type: none"> <li>- evaluate age based on the characteristics of the sternal ends of the ribs,</li> <li>- Know how to differentiate between premortar and postmortar bone injuries.</li> </ul> <p>Skills that a student needs to know:</p> <ul style="list-style-type: none"> <li>- height estimation based on measuring of exhumed skeletal remains;</li> <li>- methods used to assess the age of skeletal remains of children,</li> <li>- methods used to assess the age of skeletal remains of adults;</li> <li>- characteristics of bones injury, the mechanism of their emergence and the determination of the causes of death</li> </ul>
3. Learning outcomes (Knowledge, skills and competences)	The purpose of this elective course is that students are trained to distinguish human from animal bones, basics of human bone orientation, assessment of gender, height, age, and analysis of injuries and causes of death.
4. Teaching methods	<p>Lectures: 8 hours</p> <p>Seminars: 2 hours</p> <p>Practicum : 10 hours</p>
5. Method of knowledge assessment and examination	<p>Knowledge and skills are evaluated continuously during the course.</p> <p>Students are required to approach all forms of knowledge checking during the c</p> <p>CONTINUED ASSESMENT OF KNOWLADGE AND SKILS</p> <p><b>Practical Exam</b></p> <p>Practical Exam implies verbal - practical assessment of the acquired skills thro maximum number of points a student can achieve is 40. The student must achie to have the practical exam passed.</p>

	<p><b>Written exam</b></p> <p>The Written Exam is a test that contains 25 MCQs and essay questions that will be evaluated. Each correct answer to the question is 2 points. Students can achieve a maximum of 50 points. To qualify as a passed student, the student must achieve at least 26 points.</p> <p><b>Seminars</b></p> <p>Interactive classroom lessons on the given topic using PowerPoint presentation. The maximum points a student can achieve through the seminar is 10 points.</p> <p><b>Final exam</b></p> <p>If a student has not passed parts of a continuous examination of the knowledge, the result achieved on the particular parts of the exam, these parts student can re-examine.</p> <p>The requirement for a written part of this exam is a pre-passed practical part of the exam.</p> <p><b>Repetitive and corrective exam</b></p> <p>The repetitive and corrective exams are conducted according to the previously mentioned rules for the final exam.</p> <p>Grade is formed by summing all the points earned for each form of knowledge.</p> <table><tr><th>Grade</th><th>Points</th><th>Description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>Remarkable success without mistakes or with minor errors.</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above average, with some mistakes.</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with subtle errors.</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good, but with significant shortcomings.</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>Meets the minimum criteria.</td></tr><tr><td>5 (F,FX)</td><td>&lt; 55</td><td>Does not meet the minimum criteria.</td></tr></table>	Grade	Points	Description	10 (A)	95-100	Remarkable success without mistakes or with minor errors.	9 (B)	85-94	Above average, with some mistakes.	8 (C)	75-84	Average, with subtle errors.	7 (D)	65-74	Generally good, but with significant shortcomings.	6 (E)	55- 64	Meets the minimum criteria.	5 (F,FX)	< 55	Does not meet the minimum criteria.
Grade	Points	Description																				
10 (A)	95-100	Remarkable success without mistakes or with minor errors.																				
9 (B)	85-94	Above average, with some mistakes.																				
8 (C)	75-84	Average, with subtle errors.																				
7 (D)	65-74	Generally good, but with significant shortcomings.																				
6 (E)	55- 64	Meets the minimum criteria.																				
5 (F,FX)	< 55	Does not meet the minimum criteria.																				
6. Literature	<p><b>Recommended:</b></p> <p>Selected chapters from: <i>Siegel JA, Ed. Encyclopedia of Forensic Sciences</i>, Elsevier, 2004.</p>																					

7. Remark	<p>Lectures and practical classes are carried out in accordance with the course implementing plan at the Department of Forensic Medicine of Faculty of Medicine, University of Sarajevo. Practical classes will be attended by student having proper uniform.</p> <p>All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultations will be provided at the Department of Forensic Medicine every working day during the duration of the course with prior announcement to the e-mail: nermin.sarajlic@mf.unsa.ba</p>
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Code: <b>MSFE 1114</b>		Course title: <b>MEDICAL EXPERTISE</b>	
Level: <b>undergraduate</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Professor Nermin Sarajlić, MD PhD; Assistant Professor Adis Salihbegović, MD; Assistant Emina Spahić, MD; Assistant Anes Jogunčić, MD</b>			
1. Overall aim	The aim of the course is to provide students with additional knowledge on the forensic expertise. This refers primarily to issues and problems related to the forensic expert reports, both for the purposes of criminal and civil law and purposes of judicial proceedings, given that the task of forensic medicine is to provide assistance in cases where the court process should solve various medical problems. This practically means determining the medical findings and their integration into legislation, regardless of whether it is a civil or criminal proceeding. This field is regulated with several laws: criminal law, criminal procedure and civil procedure.		
2. Course contents	<p>The following topics will be covered during the Modules:</p> <p><b>Module 1. Introduction to forensic medical expertise, with the basic knowledge on Criminal Procedure and the Criminal Law</b> The goal of this module is to introduce to the students basic concepts of expertise and statutory definition, selection and responsibilities of expert witnesses, and the basic principles of the Criminal Procedure Code (CPC) and the Criminal Code (CC)</p> <p><b>Module 2. Expert evaluation of physical injuries in criminal or civil litigations</b> The goal of this module is to introduce students with omissions related to incomplete documentation, ways of assessing the weight of bodily injury, and with the fundamental principles of the law of civil procedure and the role of expert witnesses in civil proceedings</p> <p><b>Module 3. Forensic expertise of traffic accidents, alcohol and health status</b> The goal of this module is to get acquainted with the basic principles of traffic accidents, since traffic trauma is the most common and most important cause of violent health damage throughout the world, as well as the basis for assessing the degree of alcoholism and assessment of the health condition.</p> <p><b>Module 4. Medical malpractice – Deontology</b> The aim of this module is to get acquainted with the basics of differentiating complications and mistakes, the principles of criminal and civil liability accountability of doctors.</p>		
3. Learning outcomes (Knowledge, skills and competences)	The purpose of this elective course is that medical school students acquire expanded knowledge of subject areas such as forensic expert, expert evaluation of injury related to the Criminal Procedure and Criminal Law and in Civil Procedure, and Forensic analysis of traffic accidents.		
4. Teaching methods	Lectures: 8 hours Seminars: 2 hours Practicum : 10 hours		
5. Method of knowledge assessment and examination	Knowledge and skills are evaluated continuously during the course.  Students are required to approach all forms of knowledge checking during the course.		

## CONTINUED ASSESMENT OF KNOWLADGE AND SKILS

### **Practical Exam**

Practical Exam implies verbal - practical assessment of the acquired skills through modules 1-4. The maximum number of points a student can achieve is 40. The student must achieve at least 22 points to have the practical exam passed.

### **Written exam**

The Written Exam is a test that contains 25 MCQs and essay questions that will test modules 1-4. Each correct answer to the question is 2 points. Students can win a maximum of 50 points. To qualify as a passed student, the student must win at least 26 points.

### **Seminars**

Interactive classroom lessons on the given topic using PowerPoint presentations. The total number of points a student can win through the seminar is 10 points.

### **Final exam**

If a student has not passed parts of a continuous examination of the knowledge or is dissatisfied with the result achieved on the particular parts of the exam, these parts student can repeat on the final exam.

The requirement for a written part of this exam is a pre-passed practical part of the exam.

### **Repetitive and corrective exam**

The repetitive and corrective exams are conducted according to the previously defined criteria of the final exam.

Grade is formed by summing all the points earned for each form of knowledge checking.

Grade	Points	Description
10 (A)	95-100	exceptional success without mistakes or with minor mistakes
9 (B)	85-94	above the average, with some mistakes
8 (C)	75-84	average, with noticeable mistakes
7 (D)	65-74	generally good but with significant mistakes
6 (E)	55- 64	meets the minimum criteria
5 (F,FX)	< 55	Does not meetsthe minimum criteria

6. Literature

### **Recommended:**

1. Selected chapters from books and journals
2. Criminal Procedure and Criminal Law of B&H
3. Law on experts



8. Remark	<p>Lectures and practical classes are carried in accordance with the course-implementing plan at the Department of Forensic Medicine of Faculty of Medicine, University of Sarajevo. Student having proper uniform will attend practical classes.</p> <p>All parts of course program are obligatory. Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultations will be provided at the Department of Forensic Medicine every working day during the duration of the course with prior announcement to the e-mail: nermin.sarajlic@mf.unsa.ba</p>
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## COURSE PLAN: MEDICAL EXPERTISE

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	<b>Practical exam</b>	2
<b>Week 17./18.</b>	<b>Regular examination term</b>	
<b>Week 19.-20.</b>	<b>Remedial exam</b>	
	<b>September examination term</b>	

Code: <b>MFSE 1116</b>	Course title: <b>NUCLEAR ONCOLOGY</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Associate Professor Amela Begic, MD PhD; Assistant Professor Nermina Beslic, MD PhD; Senior Assistant Sejla Ceric, MD MSc; Amila Basic MD</b>			
1. Overall aim	The overall aim of the Nuclear Oncology Course is to increase knowledge of modern imaging in diagnostics and therapy of tumors using SPEC, SPECT/CT and PET/CT procedures.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p><b>Module 1. Imaging of tumors with PET and SPECT</b> The goal of this module is to introduce students with diagnostic algorithm in patients with different types of tumors</p> <p><b>Module 2. Radionuclide imaging in diagnosis of tumors</b> The goal of this module is to introduce students with possibilities of radionuclide imaging in detection of different types of tumors.</p> <p><b>Module 3. Radionuclide in therapeutic practice</b> The goal of this module is to introduce students with possibilities of radionuclide in therapeutic approach.</p>		
3. Learning outcomes	<p>Students will acquire knowledge necessary for understanding the radionuclide imaging and therapy in clinical oncology. This information should be integrated with other imaging/therapeutic modalities to the benefit of the cancer patients.They will be able to describe and distinguish nuclear medicine procedures in nuclear oncology which are available for oncology patients</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"><li>1. Learn the indications for SPECT,SPECT/CT and PET/CT imaging for specific tumors and will learn the importance of multimodality imaging in one diagnostics sessions.</li><li>2. Discover the strategy of the oncology diagnostic in conventional nuclear medicine.</li><li>3. Learn and understand the importance of multimodality imaging in practice.</li><li>4. Increase knowledge about the strategy of the oncologic diagnostics in modern molecular imaging.</li></ol> <p><i>Through the practical work students will acquire following skills:</i></p> <ul style="list-style-type: none"><li>- Indication specific nuclear medicine procedures for particular tumors</li><li>- Distinguish from conventional nuclear medicine and SPECT imaging</li><li>- Setting indication and dose calculation radioactive iodine 1-131 therapy in patients with thyroid cancers.</li></ul>		
4. Teaching methods	Lectures: 10 hours Practical work: 10 hours		

5. Method of knowledge assessment and examination	<p>Students' knowledge check will be carried out continuously during the course.</p> <p><b>Partial exam</b> 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><b>Practical examination</b> 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><b>Final exam</b> 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. Achieved points are added to other points and together form the final score.</p> <p><b>Repeated and Remedial exam</b> 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><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>&lt; 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
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																				
6. Literature	<p><b>Recommended:</b></p> <ul style="list-style-type: none"><li>- Bombardieri E et al. Advances in nuclear oncology. Informa UK Ltd 2007. <a href="https://the-eye.eu/public/Books/Medical/texts/Advances%20in%20Nuclear%20Oncology%20-%20Diagnosis%20and%20Therapy%20-%20E.%20Bombardieri%2C%20et.%20al.%2C%20%28Informa%2C%202007%29%20WW.pdf">https://the-eye.eu/public/Books/Medical/texts/Advances%20in%20Nuclear%20Oncology%20-%20Diagnosis%20and%20Therapy%20-%20E.%20Bombardieri%2C%20et.%20al.%2C%20%28Informa%2C%202007%29%20WW.pdf</a></li></ul> <p><b>Additional:</b></p> <ul style="list-style-type: none"><li>- Milailovic J. Gol 1. Mihailović S.J. Killeen R.P. FDG PET/CT in Clinical Oncology. Springer Verlag; 2012.</li></ul>																					

7. Remarks	<p>Valid sanitary booklet and proper clothing are mandatory for student's attendance.</p> <p>Fixing absences from classes is in accordance with legal regulations.</p> <p>Consultation period for students is each working day with prior announcement to the teaching staff or by e-mail: <a href="mailto:amela.begic@mf.unsa.ba">amela.begic@mf.unsa.ba</a></p>
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### PLAN OF SUBJECT: NUCLEAR ONCOLOGY

Week 15.	The form of teaching	Number of hours
Tuesday	<b>Lecture:</b> Indication for SPECT, SPECT/CT and PET/CT Patient preparation for PET/CT	2
Wednesday	<b>Lecture:</b> Coventional nuclear medicine in oncology Diagnostic and therapeutic approach in NET  <b>Exercises:</b> Understand diagnostic procedures in nuclear oncology. Patient preparation for PET/CT, acquisition and protocols	3  3
Thursday	<b>Lecture:</b> Radionuclide therapy. Understand and learn the radionuclid treatment, especially I-131.  <b>Exercises:</b> Interpretation of different types of tumors and specificity of nuclear medicine examination Discover the strategy of the oncology diagnostic in conventional nuclear medicine.	3  3
Friday	<b>Exercises:</b> Understand diagnostic and therapeutic procedures in NET  <b>Lecture: Partial exam</b>  <b>Exercises: Practical exam</b>	2  2  2
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	

Code: <b>MFSE 1117</b>	Course title: <b>NEURODEVELOPMENTAL DISORDERS</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Assistant professor Feriha Hadžagić Čatibušić, MD PhD; Assistant Sabina Terzić, MD PhD; Assistant Emina Hadžimuratović MD PhD</b>			
1. Overall aim	Introducing a student with: - neurodevelopmental disorders (cerebral palsy, mental disability, autism, disorders of neural tube closure, dyslexia, dyscalculia) - epidemiological characteristics of neurodevelopmental disorders - the etiology of neurodevelopmental disorders - the basic symptoms and clinical signs of neurodevelopmental disorders - diagnosis and differential diagnosis of neurodevelopmental disorders - early detection of neurodevelopmental disorders and early intervention - multidisciplinary approach to treatment of neurodevelopmental disorders		
2. Course contents	<p>Through the course, the student will adopt the following <b>knowledge</b>:</p> <p><b>Module 1. Neurodevelopmental Disorders Spectrum</b> The objective of the Module is to introduce a student with the most common neurodevelopmental disorders. Get acquainted with signs of deviation from the typical psychomotor development.</p> <p><b>Module 2. The Etiology of Neurodevelopmental Disorders</b> The aim of the Module is to introduce a student with prenatal, perinatal and postnatal causes of neurodevelopmental disorders. Introduce a student with the concept of a neurorisk child.</p> <p><b>Module 3 Early identification of neurodevelopmental disorders</b> The aim of the Module is to introduce a student with the importance of early recognition of deviations from normal psychomotor development and early intervention.</p> <p><b>Module 4 Diagnostics of Neurodevelopmental Disorders</b> The aim of the Module is to introduce the student with diagnostic algorithm: brain ultrasound, computerized tomography, brain magnetic resonance, electroencephalography, visual and hearing evaluation, psychological evaluation.</p> <p><b>Module 5. Cerebral Palsy</b> The aim of the Module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and therapeutic approach in children with cerebral palsy, which is the most severe chronic motor disability in children. Introduce a student with a modern classification of cerebral palsy according to the latest European standards (SCPE-Surveillance of Cerebral Palsy in Europe)</p> <p><b>Module 6. Comorbidities in Children with Cerebral Palsy</b> The aim of the Module is to familiarize the student with comorbidities in children suffering from cerebral palsy (epilepsy, respiratory illness, hearing and vision damage, feeding disorders, secondary skeletal deformities).</p> <p><b>Module 7. Therapeutic approach to cerebral palsy</b> The aim of the Module is to introduce a student with physical,</p>		



	<p>pharmacological and surgical therapy of spasticity and surgical therapy of orthopedic disorders in children with cerebral palsy.</p> <p><b>Module 8. Education of children with neurodevelopmental disorders</b> The objective of the Module is to introduce the student to the contemporary principles of inclusion.</p> <p><b>Module 9. Communication Disorders</b> The goal of the Module is to familiarize students with peripheral (hearing and vision impairment) and central communication disorders (autism). Introduce a student with etiology, clinical picture and treatment of children with autistic spectrum disorders.</p> <p>Through the course, the student will master the following <b>skills</b>:</p> <p><i>Skills that need to know how to perform (know how to do them):</i></p> <ul style="list-style-type: none"> <li>- knowledge of the proper taking of anamnesis with focus on data related to the psychomotoric development of the child</li> <li>- knowledge of the typical psychomotor development of infants and young children</li> <li>- recognition of the signs of slowing and deviating psychomotor development</li> <li>- knowledge of the peculiarities of the neurological examination of infants and young children</li> <li>- knowledge of the basics of neuroimaging techniques (brain ultrasound, computerized tomography, magnetic resonance imaging), indications, advantages and disadvantages for particular neuroimaging modalities.</li> </ul> <p><i>Skills that students need to know (know how and when):</i></p> <ul style="list-style-type: none"> <li>- diagnosis and differential diagnosis of neurodevelopmental disorders</li> <li>- therapeutic principles for neurodevelopmental disorders and their comorbidities</li> </ul> <p>After attending classes, the student should adopt the following <b>views</b>:</p> <ul style="list-style-type: none"> <li>- A good doctor practitioner must know the basics of etiology, clinical picture, diagnosis, differential diagnosis and therapy of neurodevelopmental disorders</li> <li>- a properly taken history, a general physical examination, and then a neurological overview of infants and young children are the basic link in the diagnosis of neurodevelopmental disorders</li> <li>- children with neurodevelopmental disorders must be integrated into society and the community as a whole</li> </ul>
4. Teaching methods	<ul style="list-style-type: none"> <li>- Lectures: 10 hours</li> <li>- Practical work: 10 hours</li> </ul>
5. Methods of knowledge assessment and examination	<p>Students' knowledge checking will be performed on a continuous basis. Continuous knowledge and skills assessment will be carried out through Partial exams and Practical colloquium.</p> <p><b>Practical Exam</b> Practical Exam entails assessing the skills acquired through all the modules at the end of the course. Evaluation of adopted skills is performed through the fulfillment of the tasks previously defined in the checklist. Each task carries the appropriate number of points. The maximum number of points a</p>

	<p>student can earn is 40. To pass the practical exam, a student must win at least 22 points. The awarded number of points is added to the other points when forming the final grade.</p> <p><b>Partial exam</b></p> <p>Partial exam is a written test with 30 MCQ questions that will examine the knowledge passed through all the modules. Each correct answer wins 2 points, and maximum is 60 points. In order to pass the exam student must earn at least 33 points. The requirement for written submission part of the exam is a pre-passed practical part of the exam. The awarded score is added to the other points and concludes the final score.</p> <p><b>Final exam</b></p> <p>If a student has not passed the practical and written exam during the semester, or is dissatisfied with the grade obtained, she/he is a candidate for the Final Exam. The criterion for taking the theoretical part of the exam is previously completed practical part of the exam.</p> <p><b>Repeated and Remedial exam</b></p> <p>Repeated and Remedial exam are conducted according to the previously defined criteria of the final exam.</p> <p>Score is formed by summing all the points earned for each form of knowledge checking.</p> <table><tr><th><i>Mark</i></th><th><i>Points</i></th><th><i>Description of mark</i></th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some mistake</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good but with significant disadvantages</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>&lt; 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><b>Obligatory:</b></p> <ul style="list-style-type: none"><li>- Vargo FE. Neurodevelopmental Disorders: A Definitive Guide for Educators. Barnes &amp; Nobles; 2015.</li><li>- Tager-Flusberg H. (ed). Neurodevelopmental Disorders. Barnes &amp; Nobles; 1999..</li></ul> <p><b>Additional:</b></p> <ul style="list-style-type: none"><li>- Kurspahić-Mujčić A, Hadžagić-Ćatibušić F. Klinički i socijalno-medicinski aspekti cerebralne paralize. Sarajevo: Institut za naučnoistraživački rad i razvoj KCUS; 2015.</li><li>- Mardešić D. Pedijatrija. Zagreb: Školska knjiga; 2016.</li></ul>																					
	<p>Maximum number of students for this course is 30. The exercises can be accessed only by students holding a valid sanitary booklet and proper uniform. All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations.</p>																					

7. Note	Student consultation period every day from 12 am to 2 pm with prior announcement at the Pediatrics Department secretary or by e-mail: <a href="mailto:pedijatrija@kcus.ba">pedijatrija@kcus.ba</a>
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## COURSE PLAN: NEURODEVELOPMENTAL DISORDERS

Week 15.	Form of teaching	Hours
Tuesday	<b>Lecture:</b> Presentation of the spectrum of neurodevelopmental disorders and its epidemiology. Basics of the typical development of infants and young children.	2
Wednesday	<p><b>Lectures:</b> Etiology of neurodevelopmental disorders (embryonic development of the human brain and their disorders, prematurity, perinatal brain lesions, perinatal asphyxia, congenital infection, genetic basics of neurodevelopmental disorders, postnatal infections and brain trauma within the first three years of life). Concept of a Neurorisk child. Brain plasticity in development. Cerebral palsy, clinical image, classification. Diagnostic and therapeutic principles.</p> <p><b>Practice:</b> Principles of work at the Neuropediatric Department and the Neuropediatric Counseling Center. Anamnesis physical examination of the patient, recognition of signs of dysmorphogenesis. The basics of neurological examination of infants and young children. Identifying signs of deviation from the typical psychomotor development.</p>	3  3
Thursday	<p><b>Lectures:</b> Cerebral palsy and comorbidities. Epilepsy, frequency of epilepsy in certain types of cerebral palsy, types of attacks, principles of therapy. Respiratory functions of the lower respiratory tract. Nutrition disorders, malnutrition, nutritional status assessment and malnutrition therapy in patients with cerebral palsy. Secondary skeletal defects in children with cerebral palsy. Autistic Spectrum Disorders. Etiology, diagnostics and therapy of autistic spectrum disorders.</p> <p><b>Practice:</b> Anamnesis and physical examination of a patient suffering from cerebral palsy. Recognizing different types of cerebral palsy, practically grading the cerebral palsy by the Gross Motor Function Classification System (GMFCS). Presentation of Neuroimaging techniques of previously neurologically reviewed and classified patients with cerebral palsy.</p>	3  3
Friday	<p><b>Practice:</b> Practical presentation of patients with certain comorbidities, clinical examination, anthropometric and laboratory assessment of nutritional status. X ray evaluation of patients with respiratory comorbidities and skeletal deformities. Malnutrition therapy and therapy of skull deformities.</p> <p><b>Practical exam</b></p> <p><b>Partial exam</b></p>	2  2  2
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	

Code: <b>MFSE 1118</b>	Course title: <b>ANOMALIES OF URINARY SYSTEM IN CHILDREN</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XI</b>	ECTS credits: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
<b>Lecturers : Assistant Professor Danka Pokrajac, MD PhD; Assistant Sabina Terzić, MD PhD; Assistant Emina Hadžimuratović, MD PhD</b>			
1. Overall aim	Overall aims of the subject are:  - to introduce a student with the most common urinary system abnormalities in children, epidemiological characteristics and pathogenic processes that lead to the development of these diseases  - familiarize students with basic symptoms and clinical signs, diagnostic methods, and correct interpretation of the results of the performed diagnostic tests that lead to accurate and timely diagnosis  - familiarize students with the modern principles of prevention and treatment of abnormal urinary system.		
2. Course contents	<p>Through the elective course students will adopt the following knowledge:</p> <p><b>Module 1. Basic characteristics of urinary system anomalies in children. Etiopathogenesis of urinary system abnormalities.</b> The aim of the Module is to introduce a student with basic characteristics and differences between the different abnormalities of the urinary system in children, as well as with genetic and teratogenic etiology and role of inflammation and functional disorders of urination in the appearance of urinary system anomalies.</p> <p><b>Module 2. Diagnosis of urinary system anomalies. Therapeutic possibilities of treatment of anomalies of the urinary system.</b> The objective of the Module is to familiarize the student with basic clinical signs and symptoms, as well as the diagnostic procedures and treatment modalities of individual urinary system anomalies.</p> <p><b>Module 3. Vesicouretral reflux. Obstructive uropathies.</b> The aim of the Module is to introduce a student with the anatomy and physiology of the vesicouretral connection, etiology and pathogenesis, pathophysiology, clinical picture, diagnosis and therapeutic approach in children with vesicouretral reflux as the most common anomaly of the urinary system. The aim of the Module is also to introduce a student with a definition, etiology, pathophysiology, clinical picture, diagnostics and therapeutic approach in children with obstructive uropathy.</p> <p><b>Module 4. Anomalies of the renal parenchyma. Abnormalities of position and kidney shape. Calyx, pyelon and ureter anomalies. Bladder and urethral abnormalities</b> The aim of the Module is to familiarize students with etiopathogenesis, clinical picture, diagnostic and therapeutic approaches in most common kidney parenchymal abnormalities (kidney agenesis, kidney hypoplasia, kidney dysplasia, cystic kidney disease) in children, with etiopathogenesis, clinical picture, diagnostic and therapeutic approaches in the most common anomalies of the placement and kidney shape (kidney malignancy, ectopic kidney, mobile kidney, „horseshoe“ kidney, crossed kidney ectopy with fusion) in children, as well as with the most common abnormalities of calyx, pyelon and ureter (hydrocalicosis, megacalicosis, pyelouretral stenosis, double ureter, ureterocele, megaureter) in children.</p>		

	<p>Through the course, the student will master the following <b>skills</b>:</p> <p><i>Skills that need to know <b>how to perform</b> (know how to do them):</i></p> <ul style="list-style-type: none"> <li>- recognizing the symptoms and signs in children with abnormalities in the urinary system</li> <li>- taking the history of disease from the parents and physical examination of the child</li> <li>- application of diagnostic methods in children with abnormalities of the urinary system</li> <li>- interpretation of laboratory findings</li> </ul> <p><i>Skills that students <b>need to know</b> (know how and when):</i></p> <ul style="list-style-type: none"> <li>- diagnostic algorithms for anomalies of the urinary system</li> <li>- basic algorithms of radiological examinations (urinary ultrasonography, mictional cystourethrography, ultrasonic contrast cystography, 99mTc-DTPA or 99mTc-MAG3 dynamic kidney scintigraphy, 99mDMSA static scintigraphy, nuclear magnetic urography, urogenital examination of the lower urinary system and ureterocystoscopy)</li> <li>- therapeutic protocols for the treatment of certain abnormalities of the urinary system</li> </ul> <p>After attending classes, students should adopt the following <b>attitudes</b>:</p> <ul style="list-style-type: none"> <li>- A good doctor practitioner must know the basic methods of diagnosing and treating abnormal urinary system in children.</li> <li>- Correctly taken of the history and the data obtained by physical examination affect the further diagnostic treatment of the patient, with the decisions of the physician having significant influence on the course of the disease.</li> </ul>
4. Teaching methods	<ul style="list-style-type: none"> <li>- Lectures: 10 hours</li> <li>- Practical work: 10 hours</li> </ul>
5. Methods of knowledge assessment and examination	<p>Student knowledge checking will be performed continuously during the course. Continuous assessment of knowledge and skills involves Practical and Partial exam.</p> <p><b>Practical exam</b> Practical exam entails assessing the skills acquired through all the modules at the end of the course. Evaluation of adopted skills is performed through the fulfillment of the tasks previously defined in the check list. Each task carries the appropriate number of points. The maximum number of points a student can win is 40. To complete the Practical exam, a student must win at least 22 points. The awarded number of points is added to the other points when forming the final grade.</p> <p><b>Partial exam</b> Partial exam consists of a test with 30 MCQ questions that will examine the knowledge passed through all the modules. Each correct answer has 2 points, a total of 60 points. To qualify for the exam, it is necessary to win at least 33 points. The awarded score is added to the other points and concludes the final score. The requirement for a written part of the exam is the pre-passed practical part of the exam.</p> <p><b>Final exam</b></p>

	<p>It takes place according to previously defined criteria of the practical and partial part of the exam for students who have not passed those parts of the exam. Previously passed Practical exam is a condition for taking the written part of the Final exam.</p> <p><b>Repeated and Remedial exam</b> Repeated and Remedial exam are conducted according to the previously defined criteria of the Final exam.</p> <p><b>Forming a final grade</b> Score is formed by summing all the points earned for each form of knowledge checking.</p> <table><tr><th>Mark</th><th>Points</th><th>Description of mark</th></tr><tr><td>10 (A)</td><td>95-100</td><td>exceptional success without mistakes or with minor errors</td></tr><tr><td>9 (B)</td><td>85-94</td><td>above the average, with some mistake</td></tr><tr><td>8 (C)</td><td>75-84</td><td>average, with noticeable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>generally good but with significant disadvantages</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>&lt; 55</td><td>does not meet the minimum criteria</td></tr></table>	Mark	Points	Description of mark	10 (A)	95-100	exceptional success without mistakes or with minor errors	9 (B)	85-94	above the average, with some mistake	8 (C)	75-84	average, with noticeable mistakes	7 (D)	65-74	generally good but with significant disadvantages	6 (E)	55- 64	meets the minimum criteria	5 (F,FX)	< 55	does not meet the minimum criteria
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6. Literature:	<p><b>Obligatory:</b> - Kliegman R, Stanton B, Geme JSt, Schor N. Nelson Textbook of Pediatrics. 20. ed. Philadelphia: Elsevier; 2015.</p> <p><b>Additional:</b> - Pokrajac D. Infekcije urinarnog sistema u djece. Sarajevo: Medicinski fakultet Univerziteta u Sarajevu; 2018. - Mesihović- Dinarević S. i sar. Pedijatrija za studente medicine. Sarajevo: Sa Vart ; 2005. - Mardešić D. Pedijatrija. Zagreb: Školska knjiga; 2016.</p>																					
7. Note:	<p>All parts of course program is obligatory. Valid sanitary booklet and proper clothing are mandatory for student’s attendance to the exercises. Fixing absences from classes should be in accordance with legal regulations. Student consultation period every day from 12 am to 2 pm with prior announcement at the Pediatrics Department secretary or by e-mail: <a href="mailto:pedijatrija@kcus.ba">pedijatrija@kcus.ba</a></p>																					

## PLAN OF SUBJECT: ANOMALIES OF URINARY SYSTEM IN CHILDREN

Week 15.	Form of teaching	Hours
Tuesday	<b>Lectures:</b> Epidemiological and clinical features of abnormal urinary system in children. Incidence and mortality of urinary anomalies. Age and sex structure of sick children. Etiology of urinary system anomalies. Diagnostic-therapeutic protocols in children with vesicular reflux and obstructive uropathy. Diagnostic methods in some abnormalities of the urinary system. Therapeutic protocols for the treatment of certain abnormalities of the urinary system.	2
Wednesday	<p><b>Lectures:</b> Diagnostic-therapeutic protocols in children with renal parenchymal abnormalities and anomalies of the positioning and kidney shape. Ethnopathogenesis of the disease. Clinical signs and symptoms of the disease. Diagnostic tests. Therapeutic approach to the urinary system abnormalities in children.</p> <p><b>Exercises:</b> Anamnesis and physical examination of the patient with abnormalities of the urinary system. Symptoms and signs in a child with anomalies of the urinary system. Diagnostic methods in abnormalities of the urinary system. Interpretation of laboratory findings and image techniques of urinary tract. Therapeutic approaches according to valid treatment protocols for each of the abnormalities of the urinary system.</p>	3  3
Thursday	<p><b>Lectures:</b> Diagnostic-therapeutic protocols in children with calyx, pelvic and ureter abnormalities and urinary bladder and urethral anomalies. Etiology, clinical picture of diagnostic tests and therapeutic approach in the abnormalities of the urinary system in children.</p> <p><b>Lecture:</b> Early detection of abnormal urinary tract-prenatal diagnosis. Emergency condition - decompression of the urinary system. Early and late effects of anomalies of the urinary system-pathogenesis of the formation of reactive scars, renoparenhim hypertension and chronic kidney disease. Treatment of renal causes of arterial hypertension. Treatment of chronic kidney disease.</p> <p><b>Exercises:</b> Anamnesis and physical examination of a patient affected with abnormalities of the urinary system. Diagnostic and therapeutic options for treating these anomalies. Interpretation of image techniques of the urinary tract in various urinary system anomalies.</p>	2  2  2
Friday	<p><b>Exercises:</b> Anamnesis and physical examination of the patient with abnormalities of the urinary system. Analysis and interpretation of laboratory findings in addition to the diagnostic and therapeutic plan for the child.</p> <p><b>Exercises: Practical exam</b></p> <p><b>Lecture: Partial exam</b></p>	3  2  1
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	



Code: <b>MFSE 1119</b>		Title of the course: <b>CHRONIC WOUND</b>	
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers and assistants: <b>Assistant Professor Amel Hadžimehmedagić, MD PhD; Senior ass. Nedžad Rustempašić, MD PhD; Senio ass. Osman Hadžiosmanović, MD MCs</b>			
1. Overall aim	The aim of Chronic Wound course is to enable students for: <ul style="list-style-type: none"><li>- inherent understanding of chronic wounds as a problem of patients and the community,</li><li>- the acquisition of basic knowledge about the classification and specificities of certain types of chronic wounds and</li><li>- the application of adequate therapeutic modalities in their treatment.</li></ul>		
2. Course contents and outcomes	<p>Through the lectures from subject matter students will gain following <b>knowledge:</b></p> <p><b>Module 1. Definition, morphology and classification of the chronic wound</b></p> <p>The aim of this Module is to introduce students to a modern concept of classification, understanding and intellection of chronic wound, conditions that omits healing process according to criterions from the etiology.</p> <p><b>Module 2. Ischemic ulcer</b></p> <p>The aim of this Module is to introduce student to etiopathogenesis and evolution of the ischemic ulcer, with metabolic and morphological consequences of the peripheral arterial disease which represents the basic for the development of this kind of chronic wound, as well as to inform student about the diagnostic and therapeutic options in treatment of the ischemic ulcer.</p> <p><b>Module 3. Venous ulcer</b></p> <p>The aim of this Module is to inform student about etiology and pathogenesis of the chronic venous ulcer, as well as its diagnostics and therapeutic modalities.</p> <p><b>Modul 4. Diabetic – neurotrophic ulcer</b></p> <p>The aim of this Module is to introduce student to metabolic and histological predispositions, anatomical characteristics and risk factors for the development of diabetic neurotrophic ulcer, as well as diagnostic and therapeutic options for the neurotrophic ulcer.</p> <p><b>Module 5. Pressure ulcer</b></p> <p>The aim of this Module is to introduce student to etiopatogenesis and morphology of chronic wound caused by mechanical pressure on the areas with low resistance to continuous pressure, and also with therapeutic and adjuvant measures in the remediation of decubital ulcers.</p> <p><b>Module 6. Surgical site infection</b></p> <p>The aim of this Module is to familiarize the student with the problem of infection of the surgical wound, the pathophysiology of dehiscence, microbiological characteristics and the multidisciplinary strategy in the treatment of the infection of the surgical wound.</p>		

	<p><b>Modul 7. Malignant wound - oncology of the wound</b></p> <p>The aim of the Module is to introduce a student with characteristics of oncological wounds, and the principles of surgical and conservative treatment of the malignant wound.</p> <p>Through lectures students will obtain following <b>skills</b>:</p> <p><i>Skills students should be able to perform practically (know how and does):</i></p> <ul style="list-style-type: none"> <li>- based on insights into anamnestic data and local status - recognize etiological factors and perform the correct classification of a chronic wound</li> <li>- the rules of a systematic description of the morphology of the wound</li> <li>- rules of adequate method of taking microbiological material (swab) from the surface of the wound</li> <li>- interpretation of the results of microbiological analysis</li> <li>- rules of asepsis and antisepses during the wound care</li> <li>- principles of surgical treatment of chronic wounds</li> <li>- the principles of selecting additional adjuvant and supportive treatment</li> <li>- the rules of the surgical strategy, tactics and technique</li> <li>- application of certain algorithmic patterns in drug treatment.</li> </ul> <p>After attended lectures the students should obtain the following <b>attitude</b>:</p> <ul style="list-style-type: none"> <li>- A proper and comprehensive approach to chronic wounds is essential for a satisfactory outcome of treatment and improving the quality of life of chronic patients.</li> </ul>
3. Learning methods	<p>The course will be realized through:</p> <ul style="list-style-type: none"> <li>- Lectures - 10 hours</li> <li>- Practicals - 10 hours</li> </ul>
4. Knowledge assesment methods	<p>Knowledge assesment is will be conducted continously. Continuous knowledge assessment includes Practical exam and Partial exam.</p> <p><b>Practical exam</b></p> <p>The practical exam involves assessing the acquired skills through Modules 1-6. Skill tests will be performed through previously defined tasks on the check-list. The maximum possible number of points that could be captured in the Practical Exam is 40. The minimal score that a student must win for successfully passed the practical part of the exam is 22. The points awarded are added to the others when forming the final grade.</p> <p><b>Partial exam</b></p> <p>A partial exam is a knowledge test, consisting of 30 multiple-choice questions (MCQs). Each correct answer to the test questions carries 2 points. The maximum score a student can earn at this exam level is 60 points. To pass the exam, a student has to capture at least 33 points.</p> <p><b>Final exam</b></p> <p>If the student has not passed the practical part of the exam at the end of the lecture, the evaluation of the acquired skills is carried out before the Final Exam by fulfilling the tasks previously defined in the check list. Each task carries the appropriate number of points. The maximum</p>

	<p>number of points a student can win is 40. In order to qualify for the practical exam, the student must score at least 22 points. The added number of points is added to the other points in forming the final grade. If the student has not passed the Partial Exam at the end of the lesson, student has to approach to the Final Exam. The Final Exam is a written test with 30 MCQ questions. Each correct answer carries 2 points, which amounts to a maximum of 60 points. To qualify for the exam, student has to win at least 33 points. The result (points) is added to the other points in forming the final grade.</p> <p>The condition for approaching to the Final exam is successfully passed Practical exam.</p> <p><b>Repeated and Remedial exam</b></p> <p>Parts of the exam that student have not passed are evaluated orally on the Repeated and Remedial exam according the rules of Final exam.</p> <p><b>Evaluation of the results and marks</b></p> <p>Total number of points captured through the all kinds of knowledge assessment translates in a final result as it is shown.</p> <table><tr><th>Mark/grade</th><th>Total points</th><th>Description</th></tr><tr><td>10 (A)</td><td>95-100</td><td>Exceptional and remarkable success without or with insignificant faults</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above standard, with some faults</td></tr><tr><td>8 (C)</td><td>75 -84</td><td>Average, with notable faults</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good, but with significant faults</td></tr><tr><td>6 (E)</td><td>55-64</td><td>Meets the minimum criteria</td></tr><tr><td>5 (F,FX)</td><td>&lt; 54</td><td>Does not meet the minimum criteria</td></tr></table>	Mark/grade	Total points	Description	10 (A)	95-100	Exceptional and remarkable success without or with insignificant faults	9 (B)	85-94	Above standard, with some faults	8 (C)	75 -84	Average, with notable faults	7 (D)	65-74	Generally good, but with significant faults	6 (E)	55-64	Meets the minimum criteria	5 (F,FX)	< 54	Does not meet the minimum criteria
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5. Literature	<p><b>Recommended:</b></p> <ul style="list-style-type: none"><li>– Gupta S, Anderson C, Black J et all. WOUNDS – A Compendium of Clinical Research and Practice. Supplement to Wounds, September 2017; woundsresearch.com</li></ul> <p><b>Additional:</b></p> <ul style="list-style-type: none"><li>– Kelly E, Tierney S, Apelqvist J, Dealey C. National best practice and evidence based guidelines for wound management. Dr. Steevens’ Hospital, Dublin: Health Service Executive; 2009.</li><li>– The Wound Healing Society. Chronic Wound Care Guidelines. Florida: Maitland; 2007.</li></ul>																					
6. Remark	<p>Lectures and practices are performed according to implementation plan at the teaching bases of the Surgical Cathedra. Valid sanitary booklet and proper clothing are mandatory for student’s attendance.</p> <p>All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultations for the students - every day from 12-14 h.</p> <p>Teaching professor e-mail: <a href="mailto:amel.hadzimehmedagic@mf.unsa.ba">amel.hadzimehmedagic@mf.unsa.ba</a></p>																					

### PLAN OF SUBJECT: CHRONIC WOUND

Week 15.	Form of teaching	Number of hours
Tuesday	<b>Lecture: Definition and etiological classification of chronic wounds.</b> Epidemiological and socio-economic aspects of chronic wounds as problems in public health. Physiology of wound healing and factors that interfere with the healing process. Ischemic ulcer, etiopathogenesis, ischemia, tissue vitality assessment methods. Evolution of ischemic ulcer, metabolic and morphological consequences of peripheral arterial disease, diagnostic and therapeutic options of ischemic ulcer. Venous ulcer - etiology and pathogenesis of chronic venous ulcer, diagnostic procedures and therapeutic modalities of this type of chronic wound.	2
Wednesday	<b>Lecture: Diabetic neurotrophic ulcer and decubital pressure wound.</b> Morphological characteristics of neurotrophic ulcer, metabolic and histological predisposition, anatomical characteristics and risk factors for the development of diabetic neurotrophic ulcer, diagnostic and therapeutic options of neurotrophic ulcer. Etiopathogenesis, evolution and morphology of decubital and pressure chronic wounds. Influence of mechanical force and gravity forces on low-resistance areas, therapeutic and adjuvant measures in decubital remediation.  <b>Practice:</b> Pedal-brachial index determination, Trendelenburg test, description of morphological quality of the wound and its surroundings, taking samples for microbiological analysis.	3  3
Thursday	<b>Lecture: Malignant wound, surgical site infection</b> Causes of dehiscence, colonization, contamination, infection. Morphology and clinical characteristics of the infection of the surgical wound. Complications Tumor exulceration, palliative therapy.  <b>Practice:</b> Neuropathy skin tests, description of the neurotrophic ulcer and decubital pressure wounds. Interpretation of biogram and antibiograms. Surgical treatment, promotion of healing by using a hyperbaric chamber and phototherapy.	3  3
Friday	<b>Practice:</b> Demonstration of principles in the treatment of infected surgical wounds, VAC systems, Debridement, selection of therapeutic materials in the local treatment of oncological and infected surgical wounds. Autolytic, chemical, biological debridement.  <b>Practical exam</b>  <b>Partial exam</b>	2  2  2
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	

Code: <b>MFSE 1120</b>	Course title: <b>CLINICAL ASPECTS OF DISEASES CAUSED BY HYPERSENSITIVITY REACTIONS</b>		
Level: <b>graduation</b>	Study year: <b>VI</b>	Semester <b>XI</b>	ECTS: <b>1</b>
Status: <b>elective</b>	Total contact hours: <b>20</b>		
Prerequisites:	<b>According to the Study Regulation</b>		
Lecturers: <b>Assistant Professor Izeta Aganović-Mušinović, MD PhD; Associate Professor Maida Rakanović-Todić, MD, PhD; Sabina Serdarević, MD</b>			
1. Overall aims	<ul style="list-style-type: none"><li>– Introduce students with hypersensitivity reactions, their pathogenesis and factors that influence them</li><li>– Introduce students with certain types of hypersensitivity reactions; diagnosis and therapy</li><li>– Teach students to resolve problems in identification of disorders caused by immunological response in hypersensitivity reactions diseases through group and individual work</li></ul>		
2. Course contents	<ul style="list-style-type: none"><li>– Right choice and analyze of relevant data and their use in immunological disease diagnosis set up; interpreting the results of immunological testing; set up the treatment protocol</li></ul>		
3. Learning outcomes (knowledge, skills and competences)	<p>Students will acquire knowledge of:</p> <p><b>Module 1. Models of hypersensitivity reaction</b> Students will be introduced with the models of hypersensitivity reaction, pathogenetic mechanisms and factors that cause hypersensitivity reactions</p> <p><b>Module 2: Diagnostics of diseases caused by hypersensitivity reactions</b> The aim of this module is to introduce students with diagnostic methods used in setting up the diagnose and treatment of the diseases caused by hypersensitivity reactions</p> <p><b>Module 3. Therapy of the diseases caused by hypersensitivity reactions</b> The aim is to introduce students with the newest therapeutic approaches in dealing with diseases caused by hypersensitivity reactions</p> <p><b>Module 4. Food intolerance</b> Student will be introduced with immunology of food intolerance, its significance, the way to set a diagnose and ordinate adequate therapy.</p> <p>Through course <b>Clinical aspects of diseases caused by hypersensitivity reactions</b>, students will be able to integrate obtained knowledge and use it in clinical practice as well as acquire following skills:</p> <p><i>Skills that student should be familiar with (know how and when):</i></p> <ul style="list-style-type: none"><li>– Independently choose and analyze relevant data, use it properly to set up the diagnose of the immunological disorder</li><li>– Independently interpret results of testing diagnostic procedures</li><li>– Make therapeutic protocol with adequate drug therapy</li></ul>		
4. Teaching methods	Lectures: 4 hours Practical work (study cases) – 16 hours		
5. Methods of knowledge assessment and examination	Methods of knowledge assessment are: <ul style="list-style-type: none"><li>– Oral testing, solving 5 study cases</li><li>– Written test</li></ul> <p><b>Students are obligate to attend to and take active participation in all types</b></p>		

	<p><b>of lecturing and to all knowledge assessments.</b></p> <p>Knowledge and skill assessments are continuous during the course based on resolving study cases.</p> <p>During study cases resolvment it will be assessed the student's independence in choosing and analyzes of relevant data and their proper use in setting up the diagnose of immunologic disease; the student's independence in interpreting the results of immunological diagnostic testing and forming the precise therapeutic protocol. Student can acquire <b>maximum of 14 point per case</b>, which is in <b>total 70 points</b>; or <b>minimum 8 points per case</b> that is in <b>total 40 points</b> Base on test results, student can achieve <b>maximum of 30 points, or minimal 16.5 points</b>. The exam is considered passed if the student archive minimal number of points in each presented study case and minimal number of points on the MCQ test. MCQ test contains 60 questions, 0.5 points each.</p> <p><b>Final exam</b></p> <p>On Final exam student is taking the part of exam that he did not pass during the lectures.</p> <p><b>Repeated and Remedial exam</b></p> <p>Repeated and Remedial exam will be organized in accordance with previously defined criteria for Final exam.</p> <p>The grade is formed in a way that archived points are counted for each type of knowledge assessment.</p> <table><tr><th><i>Grade</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 success without mistakes or minor mistakes</td></tr><tr><td>9 (B)</td><td>85-94</td><td>Above average with a few mistakes</td></tr><tr><td>8 (C)</td><td>75-84</td><td>Average, with notable mistakes</td></tr><tr><td>7 (D)</td><td>65-74</td><td>Generally good with significant deficiencies</td></tr><tr><td>6 (E)</td><td>55- 64</td><td>Satisfy minimal criteria</td></tr><tr><td>5 (F,FX)</td><td>&lt; 55</td><td>Un-satisfy minimal criteria</td></tr></table>	<i>Grade</i>	<i>Number of points</i>	<i>Grade description</i>	10 (A)	95-100	Extraordinary success without mistakes or minor mistakes	9 (B)	85-94	Above average with a few mistakes	8 (C)	75-84	Average, with notable mistakes	7 (D)	65-74	Generally good with significant deficiencies	6 (E)	55- 64	Satisfy minimal criteria	5 (F,FX)	< 55	Un-satisfy minimal criteria
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7 (D)	65-74	Generally good with significant deficiencies																				
6 (E)	55- 64	Satisfy minimal criteria																				
5 (F,FX)	< 55	Un-satisfy minimal criteria																				
6. Literature	<p><b>Recommended:</b></p> <ul style="list-style-type: none"><li>– Raif Geha and Luigi Notarangelo. Case studies in Immunology (clinical companion) sixth edition. Garland Science, Taylor &amp; Francis Group, LLC; 2012.</li></ul>																					
7. Note	<p>Maximal number of students that can apply to this elective course is 20 while the minimum number is 10.</p> <p>All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations.</p> <p>Consultation period for students is each working day with prior announcement to the teaching staff or via e-mail: <a href="mailto:izeta.aganovic@mf.unsa.ba">izeta.aganovic@mf.unsa.ba</a></p>																					

**PLAN OF THE COURSE: CLINICAL ASPECTS OF THE DISEASES CAUSED BY  
HYPERSENSITIVITY REACTIONS**

<b>Week 15.</b>	<b>Type of lectures and chapters</b>	<b>Total hours</b>
Tuesday	<b>Lecture:</b> Pathogenetic mechanisms and factors that cause the hypersensitivity reactions; types of Hypersensitivity. Diagnostic methods in proving hypersensitivity reactions.	2
Wednesday	<b>Lecture:</b> The newest therapeutic approaches in hypersensitivity reactions treatment  <b>Group work:</b> Autoimmune thrombocytopenic purpura; Goodpasture's Sy.; nephritis; vasculitis ( <b>Study cases</b> ).  <b>Group work:</b> Post-streptococcal glomerulonephritis; SLE; serum sickness; Acute Rheumatic Fever ( <b>Study cases</b> ).	1  2  3
Thursday	<b>Group work:</b> Immunodeficiency's: X-linked lymphoproliferative syndrome and autoimmune lymphoproliferative syndrome: Autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy; Immune dysregulation; Polyendocrinopathies; enteropathies; X-linked diseases (case studies).  <b>Group work:</b> Severe congenital neutropenia; Chronic granulomatous disease; Systemic juvenile idiopathic arthritis; Rheumatoid arthritis (case studies).  <b>Lecture:</b> Food intolerance, mechanisms of recognition, diagnostics and solving	2  2  1
Friday	<b>Group work:</b> Mixed essential cryoglobulinaemia; Multiple Sclerosis; Myasthenia Gravis; Pemphigus Vulgaris (case studies)  <b>Group work:</b> Toxic shock syndrome; Allergic asthma; Congenital sensitivity to Poison Ivy – contact dermatitis; Polyarthritidis nodosa ( <b>case studies</b> ).  <b>Group work:</b> Atopic dermatitis; 2 cases of food intolerance ( <b>case studies</b> )	3  2  2
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (Septembar examination term)</b>	

<b>TWELTH (XII) SEMESTER (SUMMER)</b>						
<b>Code</b>	<b>Cours Title</b>	<b>L</b>	<b>P</b>	<b>S</b>	<b>TCH</b>	<b>ECTS</b>
<b>MFSE 1201</b>	<b>Clinical Biochemistry</b>	10	20		30	2
<b>MFSE 1202</b>	<b>Clinical Pharmacology</b>	10		20	30	2
<b>MFSE 1203</b>	<b>Clinical rotation: Family Medicine</b>		90		90	5*
<b>MFSE 1204</b>	<b>Clinical rotation: Internal Medicine</b>		60		60	4*
<b>MFSE 1205</b>	<b>Clinical rotation: Surgery</b>		90		90	6*
<b>MFSE 1206</b>	<b>Clinical rotation: Pediatrics</b>		60		60	3
<b>MFSE 1207</b>	<b>Clinical rotation: Obstetrics and Gynecology</b>		60		60	3
	<b>TOTAL</b>	20	400	20	<b>450</b>	<b>25</b>

<b>Code</b>			<b>ECTS</b>
<b>MFSE 1208</b>	<b>DIPLOMA THESIS</b>	Total hours: <b>120**</b>	<b>5</b>

\*ECTS Credits present Internship total workload completed after III (Family Medicine) 2 ECTS, IV (Internal Medicine) 2 ECTS and V (Surgery) 2 ECTS year and Clinical rotations during VI year

\*\*Diploma Thesis writing, monitoring and evaluation are activities accomplished out of weekly total contact hours, limited by the Cantonal and University regulations.



Code: <b>MFSE1201</b>		Course title: <b>CLINICAL BIOCHEMISTRY</b>	
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>2</b>
Status: <b>obligatory</b>	Total contact hours: <b>30</b>		
Prerequisites:	<b>According to the study regulation</b>		
Lecturers: <b>Associate Professor Radivoj Jadrić, MD PhD; Associate Professor Sabaheta Hasić, MD PhD; Associate Professor Emina Kiseljaković, MD PhD; Assistant Lejla Alić, MD; Assistant Amila Kulo, MD</b>			
1. Overall aims	The overall aim of the Clinical Biochemistry Course is to increase knowledge on biochemical analysis selection and interpretation in various clinical conditions.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p><b>Module 1. Analytical techniques, instruments and process of automatization</b> The aim of this Module is to introduce students to analytical techniques, instruments and automation in a modern biochemistry laboratory.</p> <p><b>Module 2. Laboratory diagnostics in emergencies</b> The aim of this Module to introduce students to categories of urgent laboratory tests.</p> <p><b>Module 3. Laboratory panel in various diseases</b> The aim of this Module is to familiarize students with analytical assemblies in the diagnosis of diseases of the cardiovascular, bone and hepatobiliary system.</p> <p><b>Module 4. Biochemical analysis in tumor diagnostics</b> The aim of this Module is to introduce students to the basics of tumor diagnostics - the specificity and sensitivity of tumor markers.</p> <p><b>Module 5. Oligoelements in hematological diseases</b> The aim of this Module is to familiarize students with the role and significance of changes in the metabolism of iron and copper in the diagnosis of hematological diseases.</p> <p><b>Module 6. Physical examination and chemical analysis of urine</b> The aim of this Module is to introduce students to routine urinalysis, with emphasis on physical properties and biochemical composition of urine, and specificities of changes in individual clinical states.</p>		
3. Learning outcomes (Knowledge, skills and competences)	<p>Students will acquire knowledge necessary for understanding principles of laboratory diagnostic methods in clinical biochemistry.</p> <p><i>Through the lectures the students will gain <b>following knowledge and competences</b>:</i></p> <ol style="list-style-type: none"><li>1. Learn how to choose and interpret different biochemical analyses of various clinical conditions including heart and skeletal muscle, liver, bones, and hematological diseases.</li><li>2. Discover importance of analytical and pre-analytical factors that influence laboratory values.</li><li>3. Increase knowledge about reference values of biochemical parameters</li></ol>		

	<p>and influencing factors.</p> <p>4. Adopt the principles that different biochemical techniques may yield nonspecific or inconclusive results. Adopt the principles of biochemical analysis profiles for detailed organ system investigations</p> <p><i>Through the practical laboratory work students will acquire <b>following skills</b>:</i></p> <ul style="list-style-type: none"> <li>- To select, perform and interpret laboratory tests for liver function assessment</li> <li>- To select, perform and interpret laboratory tests for myocardial infarction assessment</li> <li>- To select, perform and interpret laboratory tests for bone remodeling assessment</li> <li>- To select, perform and interpret laboratory tests in various hematological conditions</li> <li>- To select, perform and interpret laboratory tests for renal function assessment</li> <li>- To perform complete analysis of urine</li> <li>- To recognize the influence of various physiological and seasonal variations on the results of different biochemical tests</li> </ul>
4. Teaching methods	<p><b>Lectures: 10 hours</b></p> <p><b>Practical work: 20 hours</b></p>
5. Method of knowledge assessment and examination	<p>Continuous assessment of the knowledge and skills (Midterm examination) will be carried out through Partial exam and Practical exam.</p> <p>Examination:</p> <ul style="list-style-type: none"> <li>– Practical exam (colloquium) consisted of multiple choice questions (MCQ)</li> <li>– Partial exam consisted of multiple choice questions (MCQ)</li> </ul> <p><b>Practical examination</b></p> <p>Practical exam takes up to 60% of maximum points. Assessment of practical knowledge and skills will be carried out through practical exam consisted of 30 MCQ. It is necessary to answer 16 questions correctly in order to pass the test. Each question receives 2 points. Maximum score is 60 points and minimum score is 32.</p> <p><b>Partial (Theoretical) examination</b></p> <p>Partial exam takes up to 40% of maximum points. Assessment of theoretical knowledge and skills will be carried out through partial exam consisted of 20 MCQ. It is necessary to answer 11 questions correctly in order to pass the test.</p>

Correct answers (number)	Correct answers (%)	Points
20	100	40
19	95	38
18	90	36
17	85	34
16	80	32
15	75	30
14	70	28
13	65	26
12	60	24
11	55	23

Student is not obliged to take the Regular exam if minimum points are attained during Midterm exam for both practical and theoretical parts.

#### **Regular examination term (Final exam)**

Student is obliged to take regular exam if minimum points are not attained during Midterm exams for both practical and theoretical parts of the course. Regular exam should be taken also if a student is not satisfied with the grade received on the Midterm examination. Practical exam will be taken before theoretical exam as obligatory condition for theoretical exam. Student will take the practical exam in the same form as during Midterm examination, i.e. test with 30 MCQ. Student will take the theoretical exam in the same form as during Midterm examination, i.e. test with 20 MCQ. The grading system of is the same as during Midterm examination. Passed Practical exam during Regular examination term is valid until the end of the ongoing academic year.

#### **Re-sit examination term / September examination term**

Previously defined criteria will be applied also in Re-sit and September examination terms.

#### **Grading system and grading points**

Final grade is reported according to points attained during both forms of the knowledge assessment (practical and theoretical exams).

Grade	Total score (points)	Grade description
10 (A)	95-100	Outstanding results without errors or with minor errors
9 (B)	85-94	Above average, with some mistakes
8 (C)	75-84	Average, with noticeable mistakes
7 (D)	65-74	Generally good, but with significant mistakes
6 (E)	55-64	Meets the minimum criteria
5 (F, FX)	<55	Does not meet the minimum criteria

6. Literature

#### **Obligatory:**

1. Gaw A, Cowan RA, Murphy MJ, O'Reilly DSJ, Srivastava R. Clinical Biochemistry. Churchill Livingstone; 2013.

	2. Bhagavan NV. Medical Biochemistry. Harcourt/Academic Press; 2002.
7. Remark	Lectures and practices are performed according to implementation plan at the Department of Medical Biochemistry. All parts of course program is obligatory. Fixing absences from classes should be in accordance with legal regulations. Consultations for the students - every day from 13-14 h. e-mail address of teaching teacher: <a href="mailto:radivoj.jadric@mf.unsa.ba">radivoj.jadric@mf.unsa.ba</a>

## COURSE PLAN: CLINICAL BIOCHEMISTRY

Week 1.	Teaching method and topics	Hours
Monday	<p><b>Lecture:</b> General principles of screening; screening for general health status; pre-operative examination; compounds specific for certain organ systems</p> <p><b>Practical work:</b> Laboratory techniques and their procedures, specificities of certain biological specimens (serum, plasma, urine, cerebrospinal liquor, feces, fluids from different body cavities). Laboratory diagnostics in emergency conditions.</p>	<p>3</p> <p>4</p>
Tuesday	<p><b>Lecture:</b> Rules for work in medical-biochemistry laboratory: pre-analytical, analytical and post-analytical factors, specimens to be analyzed, measures and units of measures, analytical techniques, instruments and processes of automatization, quality assurance, methods for determination of compounds in biological specimen, reference range</p> <p><b>Practical work:</b> Hematological laboratory diagnostics – analyzers in hematology (work on analyzers and results interpretation). Processes of coagulation and hemostasis. Hematological status (in physiological and pathological conditions).</p>	<p>2</p> <p>4</p>
Wednesday	<p><b>Lecture:</b> Standardization in laboratory diagnostics. Laboratory diagnostics in emergency conditions.</p> <p><b>Practical work:</b> Analytical sets for assessment of myocardial and skeletal musculature function; biochemical diagnostics in bone disorders. Basic laboratory tests for assessment of liver function. Determination of enzyme activity and protein concentration in serum for assessment of cardiomyocyte integrity (CK, troponin, myoglobin, FABP). Determination of enzyme activity for bone tissue: alkaline and acid phosphatase; bone tissues hormones.</p>	<p>2</p> <p>4</p>
Thursday	<p><b>Lecture:</b> Biochemical principles in tumor diagnostics: tumor markers, analytical procedures for determination of tumor markers. Metabolic syndrome. Laboratory test outside laboratory – point-of-care testing.</p> <p><b>Practical work:</b> Oligoelements and their importance in hematopoiesis, physiological and pathological conditions: determination of copper in serum by spectrophotometry. Determination of iron and total iron binding capacity (TIBC) in serum by spectrophotometry. Calculation of unsaturated iron binding capacity (UIBC).</p>	<p>3</p> <p>4</p>
Friday	<p><b>Practical work:</b> Standard methods in urinalysis (practical work with specimen, interpretation of results, examples from laboratory practice)</p> <p><b>Midterm examination term</b></p>	<p>2</p> <p>2</p>
Week 17-18	<b>Final exam (regular examination term)</b>	
Week 19-20	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	

Code: <b>MFSE 1202</b>	Course title: <b>CLINICAL PHARMACOLOGY</b>		
Level: <b>clinical</b>	Study year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>2</b>
Status: <b>obligatory</b>	Total contact hours: <b>30</b>		
Prerequisites: <b>According to the study regulation</b>			
Lecturers: <b>Professor Svjetlana Loga- Zec, MD PhD; Associate Professor Jasna Kusturica, MD PhD; Associate Professor Maida Rakanović-Todić, MD PhD; Assistant Professor Aida KuloĀesić, MD PhD; Assistant Professor Lejla Burnazović-Ristić, MD PhD</b>			
1. Overall aim	The overall aim of the Clinical Pharmacology Course is to increase understanding of Rational Pharmacology in Common Human Diseases.		
2. Course contents	<p>The following topics will be covered within the Modules:</p> <p><b>Module 1. Rational treatment of heart and respiratory disease</b> The aim of this Module is to introduce student to with current guidelines for the treatment of selected indications – cardiovascular and respiratory diseases (CVD and RDs), proper drug dosing, therapeutic monitoring and correction of therapy for polypharmacy cases, common adverse effects and interaction of applied drugs.</p> <p><b>Module 2. Rational treatment of neurological and psychiatric disorders</b> The aim of this Module is to introduce student to current guidelines for the treatment of selected indications - neurological and psychiatric disorders including proper drug dosing, with focus on treatment of depression, anxiety, stroke, polyneuropathies, adverse effects, and drug interactions.</p> <p><b>Module 3. Rational treatment of autoimmune, metabolic, hematological and endocrine disorders</b> The aim of this Module is to introduce student to current guidelines for the treatment of selected indications - autoimmune diseases, immunosuppression, metabolic and endocrine disorders, haematological disorders including proper drug dosing and therapeutic monitoring in rheumatoid arthritis, diabetes mellitus, thyroid dysfunctions, immunosuppressive use and their adverse effects, anemia, and interactions of applied drugs.</p> <p><b>Module 4. Rational treatment of infective diseases</b> The aim of this Module is to introduce student to current guidelines for the treatment of diseases caused by microorganisms, the dosage of drugs in selected indications and therapeutic monitoring of respiratory infection, urinary, fungal and intestinal infections. Use of medicines in the treatment of diseases caused by microorganisms with special attention to special populations of patients (children, pregnant women, patients with impaired renal and hepatic function, individual variations), and interactions and adverse effects of the administered drugs.</p>		
3. Learning outcomes	<p>Students will improve knowledge of rational administration of drugs in clinical conditions that are common in an outpatient setting in a general practitioner's office. The students will gain knowledge about current therapeutic recommendations and guidelines for common conditions. Through practical work the students will master rational selection and prescription of drugs.</p> <p><i>Through the lectures and seminar the students will gain following knowledge and competences:</i></p>		

	<p>1. Learn the current guidelines for treatment of selected CVS indications and diseases of the respiratory system (COD).</p> <p>2. Learn the current guidelines for treatment of selected neuropsychiatric indications: depression, anxiety, CVI/TIA, polyneuropathy and radiculopathy, adverse effects, and interactions.</p> <p>3. Learn the current guidelines for treatment of: autoimmune diseases, immunosuppression, metabolic and endocrine disorders, hematological disorders, including drug dosage and therapy monitoring in rheumatoid arthritis, diabetes, disorders of the thyroid gland, administration of immunosuppressants and their adverse effects, anemia, and interactions of administered drugs.</p> <p>4. Learn the current guidelines for treatment of respiratory infections, urinary tract infections, fungal infections and intestinal infestations.</p> <p><i>Through the practical laboratory work students will acquire following skills:</i></p> <ul style="list-style-type: none"> <li>-Rational prescription based on evidence</li> <li>-Recognizing the effective and safe use of drugs</li> <li>-Administration of drugs in special populations</li> <li>-Basic therapy monitoring</li> <li>-Interpretation of drug interactions</li> </ul>
4. Teaching methods	<p>Lectures: 10 hours</p> <p>Seminars: 20 hours</p>
5. Method of knowledge assessment and examination	<p>- Written tests in the form of-Multiple choice questions (MCQ) tests.</p> <p>Continuous knowledge and skills assessment will be carried out through Partial exams that involves solving problems based on clinical problems and key-feature problems</p> <p><b>Practical Exam</b> A Practical Exam implies the assessment of the acquired skills through modules 1, 2, 3 and 4. Practical Exam includes a 5-order test with responses based on clinical problems. The minimum number of points is 28 and maximum is 50.</p> <p><b>Partial Exam</b> Partial exam implies acquired knowledge through modules 1, 2, 3 and 4. Partial exam is a written test and consists of 30 MCQ questions. Each correct answer to the MCQ question is 1 point. The student must score at least 16 points to pass. The maximum number of points is 30.</p> <p><b>Seminar work</b> - adequate for practical work on exercises on a given topic. Positive seminar work is scored with a maximum of 5 points (scale 2-5). The total number of points a student can win at a seminar is 20.</p> <p>The awarded number of points is added to the other points when forming the final grade.</p> <p><b>Final exam</b> A student who has not achieved enough score during a continuous assessment or is dissatisfied with the grade obtained by completing the Final Exam. The final exam is a partial exam and a practical part. A Practice Exam is passed before the written part (partial exam) is required. If a student has not passed the Partial Exam, the written part of the final part</p>

	<p>consists of 30 MCQ questions. Each correct answer to the MCQ question is 1 point. The student must have at least 16 points to have the exam passed. The maximum number of points a student can win in this part of the exam is 25 points. The number of points earned is added to the other points in the final score.</p> <p>Grading of the parts of the exam will be performed with respect to the following rules and regulations:</p> <ul style="list-style-type: none"> <li>○ 95-100% correct answers - grade 10</li> <li>○ 85-94% correct answers - grade 9</li> <li>○ 75-84% correct answers - grade 8</li> <li>○ 65-74% correct answers - grade 7</li> <li>○ 55-64% correct answers - grade 6</li> <li>○ rest of the students – failing grade - grade 5</li> </ul>
6. Literature	<p><b>Recommended:</b></p> <ol style="list-style-type: none"> <li>1. Katzung's -Basic and Clinical Pharmacology 12th edition, The McGraw Hill Companies Inc. 2012.</li> <li>2. Goodman &amp; Gilman's the pharmacological basis of therapeutics', 12th edition, edited by Laurence Brunton, Bruce Chabner and Bjorn Knollman. The McGraw Hill; 2011.</li> <li>3. Pharmacology, HP Rang, MM Dale, JM Ritter, JR Flower, G Henderson, 7th edition, Elsevier Inc.; 2012.</li> <li>4. Modern Pharmacology with Clinical Applications. Charles R Craig &amp; Robert E Stitzel. Sixth edition, Lippincott Williams &amp; Wilkins; 2004.</li> </ol>
7. Notes	<p>Consultations will be possible every day from 12 to 13 h., with advance notice to the secretary of the Department or by e-mail: farmakologija@mf.unsa.ba</p> <p>In case of absences from teaching, the procedure defined by actual legal regulations will be followed.</p>



## COURSE PLAN: CLINICAL PHARMACOLOGY

Week 2.	Form of teaching	Number of hours
Monday	<b>Lecture:</b> Introduction to the current treatment guidelines in selected indications – Cardiovascular and Respiratory Systems; polypharmacy, common adverse effects and drug interactions  <b>Practical work:</b> Case studies and Problem based learnings.	2   4
Tuesday	<b>Lecture:</b> Introduction to the current treatment guidelines in selected indications - neurological and psychiatric disorders, common adverse effects and drug interactions.  <b>Practical work:</b> Case studies and Problem based learnings.	2   4
Wednesday	<b>Lecture:</b> Introduction to the current treatment guidelines in selected indications - autoimmune diseases and immunosuppression, metabolic and endocrine disorders, haematological abnormalities, common adverse effects and drug interactions.  <b>Practical work:</b> Case studies and Problem based learnings.	2   4
Thursday	<b>Lecture:</b> Introduction to the current treatment guidelines in selected indications - diseases caused by microorganisms, common adverse effects and drug interactions.  <b>Practical work:</b> Case studies and Problem based learnings.	2   4
Friday	<b>Practical exam</b>  <b>Partial exam</b>	4   2
Week 17./18.	<b>Final exam (regular examination term)</b>	
Week 19./20.	<b>Final exam (make-up examination term)</b>	
September	<b>Final exam (September examination term)</b>	

Code: <b>MFSE 1203</b>	Course title: <b>SHIFT-BASED TEACHING (CLINICAL ROTATION): FAMILY MEDICINE</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>5</b>
Status: <b>obligatory</b>	Total contact hours: <b>90</b>		
Responsible teachers: <b>Elected teachers, assistants, professionals in Family medicine practical work</b>			
Conditions for course attendance: <b>Completed summer internship in family medicine after 3 years of study (120 hours) and completion of 11<sup>th</sup> semester coursework</b>			
1. Overall aim	The general objective of the Shift-based Teaching in Family medicine is to guide a student through practical work in the field of the Family medicine, increase student's comprehension and ability to work as a Family physician.		
2. Course contents	Content of the shift-based teaching involves students' practical work in Public health institution of primary health care, under supervision of teachers, assistants and Family medicine specialists. Students carry on medical practice as a Family physician, guided by teachers, assistants, and Family or General physician. Students work full time in an Institution of primary health care, and they are obliged to accept and overcome basics attitudes, knowledge and skills as a physician in Family medicine branch.		
3.Learning outcomes	<p>It is expected that student during Family medicine shift-based teaching is independent in taking history of diseases, properly diagnosis, making decisions about necessary treatments, distribution of patients, understanding and implementing diagnostic and therapeutic procedures within the curriculum, in accordance with 12th Semester Practical Teaching Curriculum. Students are required to master knowledge and skills and to acquire the following attitudes:</p> <ul style="list-style-type: none"><li>- Patient's administration (opening patients' files, maintaining of records, and maintaining of patients' files)</li><li>- Communication skills with patients, establishing a patient-physician relationship</li><li>- Taking medical history:</li><li>- Preform a focused systems review</li><li>- The general principles of physical examination</li><li>- Planning a medical assessments and diagnostic tests_</li><li>- Interpretation of the medical findings</li><li>- Diagnosis</li><li>- Differential diagnosis and teamwork</li><li>- Health life styles advices</li><li>- Epidemic and immunization procedures</li><li>- Treatments of acute and chronic wounds and injuries</li><li>- Burn's treatments</li><li>- Administration of IV, IM, and SC parenteral therapy</li><li>- Small family medicine office procedures</li><li>-</li></ul>		
4. Learning methodology	Practical work under the supervision of Family medicine physician.		
5. Knowledge assessment methodology	Continuous knowledge testing by mentors based on the list of acquired knowledge and skills as stated in the 12th Semester Shift-based Teaching Curriculum.		

6. Literature	12th Semester Knowledge and Skills Curriculum of Shift-based Teaching, Faculty of Medicine, University of Sarajevo Common literature related to clinical courses and Family Medicine Course
7. Remark	Practices are performed according to implementation plan of teaching bases of the Department of the Family medicine. Valid sanitary booklet and proper clothing are mandatory in order for a student to attend the course. All parts of course program are obligatory. Fixing absences from classes are in accordance with legal regulations. Pre-agreed consultations are obligatory, and can be scheduled with the Department's secretary or via e-mail: <a href="mailto:zaim.jatic@mf.unsa.ba">zaim.jatic@mf.unsa.ba</a> .

Code: <b>MFSE 1204</b>	Course title: <b>SHIFT-BASED TEACHING (CLINICAL ROTATION): INTERNAL MEDICINE</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>VII</b>	ECTS: <b>5</b>
Status: <b>obligatory</b>	Total contact hours: <b>90</b>		
Responsible teachers: <b>Elected teachers, assistants, professionals in internal medicine practical work</b>			
Conditions for course attendance: <b>Completed summer internship in internal medicine after 4 years of study (120 hours) and completion of 11<sup>th</sup> semester coursework</b>			
1. Overall aim	The general objective of the Shift-based Teaching in Internal Medicine is an increase of students' already acquired level of diagnosing procedure understanding, prediction and therapeutic treatment through practical work, and independent and responsible implementation of diagnostic and therapeutic procedures within the curriculum, adapted to the Knowledge and Clinical Skills Curriculum.		
2. Course contents	Content of the shift-based teaching involves students' practical work under supervision of teachers, assistants and internal medicine specialists. Students are engaged at teaching base internal medicine clinics on full time bases. They are required to master the basic knowledge, skills and attitudes of internal medicine practitioners.		
3.Learning outcomes	<p>It is expected that the main outcome of internal medicine shift-based teaching is independent and responsible work in the field of internal medicine, understanding and implementing diagnostic and therapeutic procedures within the curriculum, in accordance with 12th Semester Practical Teaching Curriculum. Students are required to master knowledge and skills and to acquire the following attitudes:</p> <ul style="list-style-type: none"><li>- anamnesis and overall status in respect to all internal medicine disciplines</li><li>- recognizing normal and pathological conditions of patients</li><li>- body weight measurement, examination of locomotory system, measurement of arterial blood pressure and pulse rate</li><li>- application of appropriate physical examination methods (inspection, palpation, percussion, auscultation) in topographic regions</li><li>- digital rectal examination</li><li>- ECG recording and interpretation</li><li>- X-ray image interpretation</li><li>- venepuncture</li><li>- planning and interpreting biochemical and laboratory findings of blood, urine, sputum and faeces</li><li>- ultrasound diagnostics in internal medicine</li><li>- spirometry, ergometry, echocardiography</li><li>- endoscopic procedures in internal medicine (rectoscopy, colonoscopy, esophagoaduenoscopy, bronchoscopy)</li><li>- bone biopsy, lymph node puncture biopsy</li><li>- spinal puncture, cytomorphological smear-preparation</li><li>- differential diagnosis, diagnostic methods in internal medicine</li><li>- biopsy of parenchymal organs (liver, kidney)</li><li>- determining therapy and disease prediction</li><li>- administration of IV, SC, and IM injections</li><li>- setting up infusions</li><li>- catheterization, central venous catheterization</li><li>- connecting and disconnecting patients to dialysis machine</li><li>- pain, nausea and vomiting treatment</li><li>- nutrition of patients based on type of disease</li></ul>		

	<ul style="list-style-type: none"> <li>- emergency conditions in internal medicine, cardiopulmonary resuscitation, electrostimulation of the heart.</li> </ul>
4. Learning methodology	<p>Teaching is conducted through practical work under supervision of teachers, assistants and appointed clinical professionals at teaching base internal medicine clinics as follows:</p> <ul style="list-style-type: none"> <li>- pulmonology: 16 hours</li> <li>- cardiology: 18 hours</li> <li>- gastroenterohepatology: 14 hours</li> <li>- endocrinology: 12 hours</li> <li>- hematology: 6 hours</li> <li>- angiology: 8 hours</li> <li>- nephrology and dialysis: 10 hours</li> <li>- rheumatology: 6 hours</li> </ul>
5. Knowledge assessment methodology	Continuous knowledge testing by mentors based on the list of acquired knowledge and skills as stated in the 12th Semester Shift-based Teaching Curriculum.
6. Literature	<p>12th Semester Knowledge and Skills Curriculum of Shift-based Teaching, Faculty of Medicine, University of Sarajevo</p> <p>Common literature related to clinical courses and Internal Medicine Course</p>
7. Remark	<p>Practices are performed according to implementation plan of teaching bases of the Department of the Internal medicine. Valid sanitary booklet and proper clothing are mandatory in order for a student to attend the course.</p> <p>All parts of course program are obligatory. Fixing absences from classes are in accordance with legal regulations.</p> <p>Consultations for the students - every day from 14-15 h, with prior announcement to the teaching professor via e-mail.</p>

Code: <b>MFSE 1205</b>	Course title: <b>SHIFT-BASED TEACHING SCHEDULE (CLINICAL ROTATION): SURGERY</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>5</b>
Status: <b>obligatory</b>	Total contact hours: <b>90</b>		
Responsible teachers: <b>Elected teachers, assistants, professionals in clinical surgery</b>			
Conditions for course attendance: <b>Completed summer internship in internal medicine after 5 years of study (120 hours) and completion of 11<sup>th</sup> semester coursework.</b>			
1. Overall aim	The general objective of The shift-based teaching in surgery course is an increase of students' understanding of surgical procedures and interventions through practical work in the field of general surgery, acquiring experience in independent work, decision making and responsible conduct of diagnostic and therapeutic procedures within the 12th semester curriculum.		
2. Course contents	Under the supervision of teachers, assistants and surgeons, students work full time in the role of general surgeons at teaching base surgical clinics. Students are required to master the basic knowledge, skills and attitudes of general surgery practitioners, be prepared for team work, decision making and to independently carry out work in the field of emergency surgery.		
3. Learning outcomes	<p>It is expected that the main outcome Shift-based teaching in Surgery is independent and responsible work in the field of general surgery, understanding and implementing diagnostic and therapeutic procedures within the program, in accordance with the 12th semester Practical Teaching Curriculum. Students are required to master knowledge and skills and to acquire the following attitudes:</p> <ul style="list-style-type: none"><li>- Taking of medical history, anamnesis and diagnostics, diagnostic procedures in surgical patients</li><li>- Interpretation of findings, recognition of surgical patients</li><li>- Emergency conditions in surgery</li><li>- Primary treatment of wounds, procedures in cases of clean and contaminated wounds, applying dressings and the aseptic technique in changing dressings in surgical patients</li><li>- Primary closure of surgical wounds, suturing techniques, secondary closure of surgical wounds</li><li>- Foreign bodies retrieval</li><li>- Recognition of patients' vital function vulnerability</li><li>- Wound toilet and removal of stitches or staples from surgically treated wounds</li><li>- Assessment of surgical wound healing</li><li>- Understanding of surgical instruments</li><li>- Preoperative and postoperative care of surgical patients</li><li>- Temporary immobilization of fractures, luxations and distortions, application of fixing bandages, triangle bandage, cast removal</li><li>- First aid in pneumothorax, pleural puncture, thoracic cingulum</li><li>- Resuscitation, artificial respiration, heart massage, defibrillation</li></ul>		

4. Learning methodology	<p>Teaching is conducted through practical work under supervision of teachers, assistants and elected surgeons at teaching base surgical clinics as follows:</p> <ul style="list-style-type: none"> <li>- abdominal surgery: 18 hours</li> <li>- orthopedics and traumatology: 12 hours</li> <li>- otorhinolaryngology: 6 hours</li> <li>- anesthesia: 12 hours</li> <li>- ophthalmology: 6 hours</li> <li>- neurosurgery: 6 hours</li> <li>- plastic surgery: 6 hours</li> <li>- urology: 12 hours</li> <li>- pediatric surgery: 6 hours</li> <li>- thoracic surgery: 6 hours</li> </ul>
5. Knowledge assessment methodology	Continuous knowledge testing by mentors based on the list of acquired knowledge and skills as stated in the 12th Semester Shift-based Teaching Curriculum.
6. Literature:	<p>12th Semester Knowledge and Skills Curriculum of Shift-based Teaching, Faculty of Medicine, University of Sarajevo</p> <p>Common literature related to clinical courses and the Surgery course.</p>
7. Remarks	<p>Lectures and practices are performed according to implementation plan at the teaching bases of the Department of Surgery. Valid sanitary booklet and proper clothing are mandatory in order for a student to attend the course.</p> <p>All parts of course program are obligatory. Fixing absences from classes is in accordance with legal regulations.</p> <p>Consultations for the students - every day from 13-14 h, with prior announcement to the teaching professor via e-mail.</p>

Code: <b>MFSE 1206</b>	Course title: <b>SHIFT-BASED TEACHING (CLINICAL ROTATION): PEDIATRICS</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>3</b>
Status: <b>obligatory</b>	Total contact hours: <b>60</b>		
Responsible teachers: <b>Elected teachers, assistants, professionals in the field of Pediatric practice</b>			
Conditions for course attendance: <b>Completed 11<sup>th</sup> semester coursework</b>			
1. Overall aim	The general objective of the Pediatrics Shift-based Teaching is that students through practical work in the field of Pediatrics increase their knowledge and level of understanding of pediatric procedures and operations, to work independently and show their skills in determining diagnosis, therapy and disease prognosis, and responsibility in implementing diagnostic and therapeutic procedures within the pediatric shift-based teaching, as well as to present their opinions in the treatment of diseases in children.		
2. Course contents	Students are supervised by teachers, assistants and pediatrics specialists and work full time as pediatricians at the Pediatric Clinic of the teaching base. Students are required to master the basic knowledge, skills and attitudes of pediatric specialists.		
3.Learning outcomes	<p>It is expected that the main outcome of the Shift-based Teaching in Pediatrics is students' independent and responsible work in the field of pediatrics, understanding and implementing diagnostic and therapeutic procedures in accordance with the 12th Semester Practical Teaching Curriculum. Students are required to master knowledge, skills and attitudes as follows:</p> <ul style="list-style-type: none"><li>- Taking the statute and history of pediatric patients, depending on age</li><li>- Overall status, examination in piece, pediatric respiratory assessment</li><li>- hypersensitivity skin testing and allergy skin tests</li><li>- identification of risk factors and recognition of normal and pathological conditions in pediatrics</li><li>- preparation of pediatric patients for physical, laboratory-biochemical, invasive and other diagnostic methods</li><li>- physical examination, laboratory-biochemical diagnostics and interpretation of RTG, ECG, EEG, EMG, CT, EHO, MRI results</li><li>- application of diagnostic methods in establishing diagnosis</li><li>- taking and interpreting biochemical and laboratory findings of blood, urine, faecal and sputum culture</li><li>- emergency conditions in pediatrics, reanimation skills in pediatric patients</li><li>- intensive care in neonatology</li><li>- therapy, prediction and rehabilitation in pediatrics</li></ul>		



4. Learning methodology	<p>Teaching is conducted through practical work under supervision of teachers, assistants and appointed clinical professionals at the Pediatric Clinic as follows:</p> <ul style="list-style-type: none"> <li>- gastroenterohepatology: 6 hours</li> <li>- cardiology: 12 hours</li> <li>- pulmonology: 12 hours</li> <li>- neonatology and intensive care: 12 hours</li> <li>- nephrology: 6 hours</li> <li>- endocrinology and diabetes: 6 hours</li> <li>- hematology and oncology: 6 hours</li> <li>- neuropsychiatry: 6 hours</li> <li>- physical medicine and rehabilitation: 6 hours</li> <li>- admission triage and general pediatrics: 12 hours</li> <li>- allergologyimmunoreumatology: 6 hours</li> </ul>
5. Knowledge assessment methodology	Continuous knowledge testing by mentors based on the list of acquired knowledge and skills as stated in the 12th Semester Shift-based Teaching Curriculum.
6. Literature	12th Semester Knowledge and Skills Curriculum of Shift-based Teaching, Faculty of Medicine, University of Sarajevo Common literature related to clinical courses and Pediatric Course.
7. Remark	<p>Lectures and practices are performed according to the implementation plan of the teaching bases of the Department of Pediatrics. Valid sanitary booklet and proper clothing are mandatory in order for a student to attend the course.</p> <p>All parts of course program are obligatory. Fixing absences from classes is in accordance with legal regulations.</p> <p>Consultations for the students - every day from 13-14 h, with prior announcement to the teaching professor via email.</p>

Code: <b>MFSE 1207</b>	Course title: <b>SHIFT-BASED TEACHING (CLINICAL ROTATION): OBSTETRICS AND GYNECOLOGY</b>		
Level: <b>clinical</b>	Year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>3</b>
Status: <b>obligatory</b>	Total contact hours: <b>60</b>		
Responsible teachers: <b>Elected teachers, assistants and appointed professionals in clinical gynecology and obstetrics</b>			
<b>Conditions for course attendance: Completed 11th semester of coursework</b>			
1. General objective	The general objective of the Shift-based Teaching in Gynecology and Obstetrics is that through practical work in the field of gynecology and obstetrics students increase their knowledge and level of understanding of procedures and operations in the field of gynecology and obstetrics, to work independently and show skills in determining diagnosis, therapy and disease prognoses, and to show responsibility in implementing diagnostic and therapeutic procedures within the Gynecology and Obstetrics Shift-based Curriculum.		
2. Purpose of shift-based teaching	Students are supervised by teachers, assistants and specialists in gynecology and obstetrics and work full time as gynecologists at the Gynecology and Obstetrics Clinic of the teaching base. Students are required to master the basic knowledge, skills and attitudes of specialists in gynecology and obstetrics.		
3. Learning outcome	<p>Independent and responsible work in the field of gynecology and obstetrics, understanding and implementing diagnostic and therapeutic procedures in accordance with the 12th Semester Practical Teaching Curriculum. Students are required to master knowledge, skills and attitudes as follows:</p> <ul style="list-style-type: none"><li>- Work at admission department, taking general and gynecological anamnesis, taking cervical swabs</li><li>- bimanual examination of internal female pelvic organs</li><li>- instrumental examination of females, biopsy and sampling, secretion sampling, Papannnicolaue method of cervical screening</li><li>- collecting a semen sample, normal and pathological semen analysis</li><li>- artificial insemination, heterospermic insemination, preparation of women for extracorporeal fertilization, hormonal sterility therapy in women</li><li>- obstetric anamnesis and ultrasound gynecological diagnostics, gestational age calculation</li><li>- Preoperative preparation and postoperative care of gynecologic patients</li><li>- identification of emergency conditions in gynecology</li><li>- procedures for treatment of gynecological bleeding</li><li>- determination of delivery due date, external examination of pregnant woman and female pelvic organs</li><li>- normal and pathological labors and deliveries, monitoring fetus condition</li><li>- management of delivery, placental abruption, episiotomy, postnatal examination</li><li>- other knowledge, skills and abilities as stated in the 12th Semester Practical Teaching Curriculum.</li></ul>		

4. Learning methodology	<p>Teaching is conducted through practical work under supervision of teachers, assistants and elected clinical professionals at the Gynecology and Obstetrics Clinic as follows:</p> <ul style="list-style-type: none"> <li>- gynecological propedeutics: 6 hours</li> <li>- gynecologic pathology: 6 hours</li> <li>- cabinet for early detection of female genital organs cancer and breast cancer</li> <li>- cabinet for diagnosing and treatment of sterility and endocrine disorders: 6 hours</li> <li>- propedeutics of obstetrics: 6 hours</li> <li>- cabinet for pregnancy ultrasound: 6 hours</li> <li>- ward for pathological pregnancies: 6 hours</li> <li>- delivery rooms: 6 hours</li> <li>- normal and pathological postpartum period: 6 hours</li> <li>- intensive care for preterm newborns and newborns with complications during childbirth: 6 hours</li> </ul>
5. Learning methodology	Continuous knowledge testing by mentors based on the list of acquired knowledge and skills as stated in the 12th Semester Shift-based Teaching Curriculum.
6. Literature	<p>12th Semester Knowledge and Skills Curriculum of Shift-based Teaching, Faculty of Medicine, University of Sarajevo</p> <p>Common literature related to clinical courses and Gynecology and Obstetrics Course.</p>
7. Remark	<p>Lectures and practices are performed according to the implementation plan of the teaching bases of the Department of Gynecology. Valid sanitary booklet and proper clothing are mandatory in order for a student to attend the course. All parts of course program are obligatory. Fixing absences from classes is in accordance with legal regulations.</p> <p>Consultations for the students - every day from 13-14 h, with prior announcement to the teaching professor via email.</p>

Code: <b>MFSE 1208</b>	Course title: <b>UNDERGRADUATE THESIS</b>		
Level: <b>undergraduated preclinical/clinical</b>	Year: <b>VI</b>	Semester: <b>XII</b>	ECTS: <b>5</b>
Status: <b>obligatory</b>	Total hours: <b>120</b>		
Mentor:	<b>Elected undergraduate thesis mentor(s)</b>		
Conditions for course attendance:			
1. General objective	The general objective of drafting and defending undergraduate thesis is to increase ability of students for independent research and scientific work, producing professional and review papers. Students will get the opportunity to apply previously acquired knowledge in collecting and analyzing data and making scientific conclusions.		
2. Content	The content of the course comprises students' work and activities related to defense of the selected undergraduate thesis topic, under supervision of the respective mentors, through interactive discussions and practical work related to the application of selected methodology for undergraduate thesis drafting.		
3. Learning outcome	After completing and defending undergraduate thesis, the undergraduate medical doctor will be able to do the following: <ul style="list-style-type: none"><li>- Use appropriate literature and other sources of medical information</li><li>- Conduct theoretical and practical research in a specific branch of medicine</li><li>- Describe scientific process of drafting thesis and key phases thereof</li><li>- Organize and produce review or professional paper following his/her mentor's guidance (undergraduate thesis)</li><li>- Defend his/her undergraduate thesis before the defense commission</li></ul>		
4. Teaching methodology	Undergraduate thesis (independent work) and practical work under mentor's supervision		
5. Knowledge assessment methodology	Undergraduate thesis defense before the defense commission.		
6. Literature	<b>Obligatory:</b> <ul style="list-style-type: none"><li>- Marušić M, ed. Principles of Research in Medicine. 4th ed. Zagreb: Medicinska naklada; 2008.</li><li>- Day RA, Gastel N. How to write and publish a scientific paper, 7th ed. Santa Barbara (CA): Greenwood Publishing Group, 2011.</li></ul>		
7. Remark	The student will defend undergraduate thesis in accordance with the Law on Higher Education and the University of Sarajevo Statute.		

