
		<b>UNIVERSITY OF EAST SARAJEVO</b> Faculty of Medicine in Foca					
		<b>Study program:medicine</b>					
		Integrated academic studies		IV study year			
<b>Full subject title</b>		Internal medicine					
<b>Department</b>		Department for internal medicine and pediatrics , Faculty of Medicine in Foca					
<b>Subject code</b>			<b>Subject status</b>		<b>Semester</b>		<b>ECTS</b>
ME-02-1-036-7; ME-02-1-036-8			compulsory		VII and VIII		28
<b>Professor/ -s</b>		Prof. Marijana Kovačević, associate professor; Prof. Peđa Kovačević, full professor; prof. Dr. Aleksandra Hotić-Lazarević, full professor; prof. Dr. Aleksandra Marković, associate professor; prof. Dr. Nataša Zdravković, associate professor; prof. Dragan Kovačević, Ph.D., full professor; Vlastimir Vlatković, Ph.D., full professor; Assistant Professor; Mirajna Zlatković Švenda, Ph.D., Assistant Professor; prof. Verica Prodanović, assistant professor; prof. Jelena Vladičić-Mašić, assistant professor; professor Ivona Risović, assistant professor; prof. Dejan Bokanjic, full professor; prof. Biljana Milinkovic, assoc. prof.					
<b>Associate/ -s</b>		M.Sc. Dr. Slađana Popović, senior assistant; M.Sc. Dr. Nikolina Dukić, senior assistant; Dr. Olivera Cancar, senior assistant; assistant Srđan Popović, assistant; assistant Nina Pavlović Veljović; Ana Vladičić, Ph.D., clinical associate, Marija Petrović Pajkanović, Ph.D., clinical associate. ; Dr. Milica Kunarac, clinical associate					
<b>Number of lectures/ teaching workload (per week)</b>			<b>Individual student workload (in hours per semester)</b>			<b>Coefficient of student workload S<sub>0</sub><sup>1</sup></b>	
<b>L</b>	<b>E</b>	<b>SP</b>	<b>L</b>	<b>E</b>	<b>SP</b>	<b>S<sub>0</sub></b>	
3	8	2	3*15*0.79	8*15*0.79	2*15*0.79	0.79	
7	8	3.33	7*15*0.79	815*0.79	3.33*15*0.79	0.79	
total teaching workload (in hours, per semester) 3*15 + 8*15 + 2*15 = 195  7*15 + 8*15 + 3,33*15 = 275			total student workload (in hours, per semester) 3*15*0.79 + 8*15*0.79 + 2*15*0.79 = 154  7*15*0.79 + 8*15*0.79 + 3,33*15*0.79 = 217,2				
Total subject workload (teaching + student): 470 + 370 = 840 hours per semester							
<b>Learning outcomes</b>		<ol style="list-style-type: none"><li>1. Student should learn basic communication skills with patients, relatives of patients and colleagues, the principles of teamwork and basics about ethics.</li><li>2. Students need to learn how to take history and physical examination</li><li>3. During teaching process, students should acquire all necessary knowledge about the pathogenesis, clinical treatment of diseases and different conditions in adult population in all areas of Internal Medicine. Special attention is focused to the importance of preventive medical procedures.</li><li>4. During practical course students are introduced with clinical examination of patients, how to establish diagnosis. differential diagnostic procedures, ECG, X-ray images. They are also taught who to become familiar with the interpretation of the echo findings, endoscopic procedures, the abdominal, pleural and pericardial puncture, the basic principles of hemodialysis and peritoneal dialysis, the preparation of patients for transplantations and self-administration of the therapy.</li></ol>					
<b>General competences</b>		They possess broad fundamentals of theoretical knowledge and practical skills, preparing them for any type of postgraduate education as well as for collaboration with other medical professionals. They have acquired a systemic thinking approach as well as a structured approach to medical problems. They are acquainted with a specific diagnostic algorithm. They are capable of making appropriate therapeutic decisions. They are capable of acting in accordance with rational and scientific concepts and principles. They are eager to dedicate themselves to the field of medicine and accept responsibility for the physical, mental and social well-being of their patients. They are respectful to the patients regardless of their gender, age, race, social and economic status, education, culture or religion. They advocate for the patient's right to participate fully in medical treatment decisions, including the right to the refusal of care or participation in the process of education and scientific research. They are capable of expressing					

<sup>1</sup>The coefficient of student workload S<sub>0</sub> is calculated as it follows:

a) for the study programs not going through the licensing process: S<sub>0</sub> = (total workload in semester for all of the subjects 900 hrs – total teaching workload L+E in semester for all of the subjects 870 hrs)/ total teaching workload L+E in semester for all of the subjects \_\_\_\_ hrs = \_\_\_\_\_. Consult form content and its explanation.  
b) for the study programs going through the licensing process, it is necessary to use form content and its explanation.

	<p>themselves and communicating in a manner that is both understandable and acceptable to the patient. They are prepared for accepting responsibility and appropriate medical decision-making. They are acquainted with health improvement and disease prevention and are eager to make medical professionals adopt more positive attitude towards it. They have adopted attitudes and gained understanding of their personal limitations in accordance with the previous education and experience. They are conscious of the necessity for continuous learning and improvement process to maintain a high level of medical competence. They are eager to train the colleagues and improve their own teaching skills. They adhere to legal requirements regarding ongoing theoretical and practical training.</p>
<b>Preconditions</b>	Precondition for taking the exam is that students passed Special pharmacology and toxicology exam.
<b>Teaching methods</b>	Oral lectures and exercises, PBL sessions, case reports, phantoms, seminars, computer based softwares and consultations.
<b>Subject content per week</b>	<p><b>PROGRAM OF THEORETICAL TEACHING IN INTERNAL MEDICINE</b></p> <p><b>Diseases of the respiratory organs</b></p> <ol style="list-style-type: none"> <li>1. Examination of respiratory function. (2 hours). Bronchial asthma. (2 hours) Chronic obstructive pulmonary disease. (2 hours)</li> <li>2. Pneumonia. (2 hours). Lung abscess, bronchiectasis. (1 hour). Pulmonary thromboembolism (1 hour) . Pleural effusions. (1 hour)</li> <li>3. Acute and chronic respiratory insufficiency (2 hours) Tumors of the lungs, pleura and mediastinum. (4 hours)</li> <li>4. Lung granulomatosis and fibrosis. (2 hours). Tuberculosis (4 hours).</li> </ol> <p><b>Diseases of the heart and blood vessels</b></p> <ol style="list-style-type: none"> <li>6. Heart failure (2 hours). Arterial hypertension. (2 hours).</li> <li>7. Rheumatic fever.. Acquired valvular heart defects. (4 hours). Congenital defects of the heart and large blood vessels. (2 hours)</li> <li>8. Coronary heart disease. Angina pectoris. Acute myocardial infarction. (4 hours)</li> <li>9. Diseases of the pericardium (2). Infective endocarditis. Myocarditis (3 hours).</li> <li>10. Myocardiopathy. (2 hours) Heart rhythm disorders. (3 hours)</li> <li>11. Acute pulmonary heart disease. Chronic pulmonary heart. Pulmonary hypertension. (2 hours). Diseases of the aorta and peripheral arteries. (2)</li> </ol> <p><b>Diseases of the digestive system</b></p> <ol style="list-style-type: none"> <li>12. Diseases of the esophagus, stomach and duodenum. (4 hours).</li> <li>13. Diseases of the small intestine (4 hours)</li> <li>14. Diseases of the colon (4 hours). Pancreatic diseases (3 hours)</li> <li>15. Liver diseases (4 hours). Diseases of the biliary tree. (2 hours)</li> </ol> <p><b>Diseases of improper nutrition and metabolic disorders</b></p> <ol style="list-style-type: none"> <li>16. Obesity and malnutrition. (1 hour)</li> <li>Glycogenosis. Galactosemia.. (1 hour)</li> <li>Lipids and lipoproteins, hyperlipoproteinemia. Division, clinical picture, lab. diagnosis, treatment. (2 hours)</li> </ol> <p><b>Allergic and immunological diseases</b></p> <ol style="list-style-type: none"> <li>17. Classification and general characteristics of immunological diseases in internal medicine. Basic principles of prevention and treatment of immunological diseases. (2 hours)</li> <li>18. Allergic diseases caused by inhalation allergens (allergic bronchial asthma, allergic broncho-pulmonary aspergillosis, allergic bronchioalveolitis). (2 hours)</li> <li>Allergic diseases caused by nutritional allergens (primary and secondary). (1 hour)</li> </ol> <p><b>Diseases of the locomotor system and systemic diseases of the connective tissue</b></p> <ol style="list-style-type: none"> <li>19. Classification of rheumatic diseases. (1 hour) Rheumatoid arthritis. Extra-articular manifestations of</li> </ol>

rheumatoid arthritis. (2 hours). Ankylosing spondylitis. Enteropathic arthropathies. Reiter's syndrome. Psoriatic arthropathies (2 hours).  
20. Seronegative arthropathies. (1 hour) Arthrozeperfernihglobova. Degenerative diseases of the spine. Lumbar and cervical pain syndrome. (2 hours) Metabolic rheumatism (gout). (1 hour)  
21. Infectious arthritis (1 hour). Extra-articular rheumatism (1 hour). Systemic erythema (1 hour). Progressive systemic sclerosis. Polymyositis. Polyarthritis. (3 hours)

#### **Diseases of the blood and blood-forming organs**

22. Anemias (hyposideremic, megaloblastic, aplastic, anemia in the course of chronic diseases). (2 hours) . Hereditary and acquired hemolytic anemias. (2 hours).  
23. Chronic myeloproliferative diseases (chronic granulocytic leukemia, PRV, essential thrombocythemia, osteomyelofibrosis). (2 hours) Acute leukemia (myeloblastic and lymphoblastic), (2 hours)  
24. Lymphomas (2 hours), Myelodysplastic syndrome. (2 hours). Multiple myeloma, chronic lymphocytic leukemia. (2 hours)  
Hemorrhagic syndromes (thrombocytopenia, coagulopathies, vasculopathies). (2 hours)

#### **Diseases of glands with internal secretion**

25. Pituitary diseases. (2 hours)  
Hyperthyroidism (1 hour). Hypothyroidism. (1 hour)  
Goiter. thyroiditis, thyroid tumors. (2 hours)  
26. Diseases of PTŽ (2 hours). Adrenal gland disease. (2 hours).  
Hirsutism. Androgenital syndrome. Bolestigonada. (2 hours)  
27. Diabetes mellitus (etiology, pathogenesis). Clinic and diagnosis of diabetes. (2 hours)  
Acute and chronic complications of diabetes mellitus. (2 hours)  
Treatment of diabetes mellitus. (2 hours)

#### **Kidney and urinary tract diseases**

28. Diagnosis of kidney diseases. (2 hours)  
Congenital anomalies of the urinary tract (1 hour)  
Acute renal failure. (2 hours)  
Chronic renal insufficiency. (2 hours)  
Replacement therapy of renal function (basic principles of hemodialysis, peritoneal dialysis, kidney transplantation) (2 hours).  
29. Glomerular diseases. (3 hours)  
Tubulointerstitial nephropathy. Urinary tract infections. (3 hours)  
30. Endemic and diabetic nephropathy. (1 hour).  
Vascular kidney diseases. (2 hours)  
Nephrolithiasis (1 hour)  
Kidney tumors (1 hour).

### **PROGRAM OF PRACTICAL TEACHING IN INTERNAL MEDICINE**

#### **DISEASES OF THE RESPIRATORY ORGANS**

1. Familiarity with lung function tests (spirometry, flow-volume curve, body plethysmography, plethysmography, lung transfer factor determination, pharmacodynamic tests, arterial blood gas analysis). (3 hours).  
Clinical treatment and therapy of patients with bronchial asthma (2 hours), chronic bronchitis (2 hours) and emphysema (2 hours)  
2. Clinical treatment and therapy of patients with inflammatory diseases of the respiratory organs (pneumonia, lung abscess, bronchiectasis, pleuritis). (5 hours)  
Clinical treatment, control and therapy of patients with chronic respiratory insufficiency and chronic shallow heart decompensation. (4 hours) .  
3. Treatment of patients with tumors of the bronchi, pleura and mediastinum (clinical picture, X-ray examinations, invasive diagnostics) and therapeutic methods (5 hours)  
4. Lung TB (familiarity with the basics of tuberculin tests, BCG vaccination, clinical picture, diagnosis and

therapy of patients with lung TB). (4 hours)  
5. Clinical treatment and treatment of patients with sarcoidosis and pulmonary fibrosis (4 hours)

### **Diseases of the heart and blood vessels**

5. Diagnostic methods in cardiology (ECG interpretation, echo,...) (5 hours)  
6. Clinical treatment and therapy of patients. with various forms of heart failure (4 hours)  
7. Clinical treatment and therapy of patients with valvular heart defects.  
diagnosis and therapy of complications in patients with artificial heart valves. (6 hours)  
8. Coronary disease. Treatment and therapy of patients with stable and unstable angina pectoris.  
Significance of invasive and non-invasive diagnostic procedures in patients  
with angina pectoris (5 hours)  
9. Coronary disease. Treatment and therapy of patients with acute myocardial infarction. (5 hours)  
10. Clinical treatment and therapy of patients with arterial hypertension. Treatment of patients with aortic  
diseases. (5 hours)  
11. Clinical treatment and therapy of patients with heart rhythm disorders. (6 hours)  
12. Clinical treatment, diagnosis and therapy of patients with cardiomyopathies (4). Clinical treatment of  
patients with pericarditis (2). Clinical treatment and therapy of patients with infective endocarditis. (2  
hours)  
13. Clinical treatment and therapy of patients with acute and chronic pulmonary heart disease (4).

### **Diseases of gastrointestinal organs**

14. Getting to know the general principles of diagnostics and enterology.  
(2 hours)  
Processing and treatment of patients with diseases of the esophagus. (3 hours)  
Treatment of patients with acute and chronic gastritis (2 hours)  
15. Treatment and treatment of patients with ulcer disease (2 hours). Treatment of patients with tumors of  
the stomach and duodenum. (2 hours)  
Processing and treatment of patients with tumors of the small and large intestine (2 hours)  
16. Processing and treatment of patients with inflammatory bowel diseases (Crohn's disease and  
ulcerative colitis) (2 hours)  
Treatment and treatment of patients with other diseases of the small intestine (celiac disease,...) and large  
intestine (diverticulosis,...) (2 hours)  
Treatment and treatment of patients with acute and chronic pancreatitis (2 hours) and pancreatic cancer  
(2 hours).

### **Diseases of the liver and bile ducts**

17. Division of jaundice. Presentation, treatment and treatment of patients with cirrhosis of the liver. (2  
hours)  
Presentation, treatment and treatment of patients with liver failure. Hepatic coma and encephalopathy (2  
hours)  
Presentation of a patient with hepatitis (A, B and C virus). (2 hours)  
Toxic hepatitis. The way of manifestation of the toxic effect of drugs: necrosis, cholestasis, fibrosis,  
hypersensitivity. clinical picture. (2 hours)  
18. Presentation of a patient with chronic hepatitis (2 hours). Autoimmune hepatitis (2 hours)  
Presentation, treatment and treatment of patients with ascites (2 hours).  
Presentation, treatment and treatment of patients with benign and malignant liver tumors (2 hours).  
Primary malignant tumors. Secondary tumors of the liver, Patient report.  
Importance of guided biopsy. (2 hours)  
Presentation, treatment and treatment of patients with gallstone calculus (2 hours).  
Clinical picture of tumors of the bile ducts and ampullary region. Presentation of the patient. Differential  
diagnosis of obstructive jaundice. (2 hours)

### **Malnutrition diseases and metabolic disorders**

19. Calculation of BMI, Assessment of type of obesity (androgenic, gynoid).  
Assessment of the degree of malnutrition, treatment of patients with anorexia nervosa and bulimia. (2  
hours)

Treatment of patients with various types of hypoglycemia, diagnostic possibilities for determining the nature of hypoglycemia. urgent and chronic treatment of hypoglycemia. Differential diagnosis of glycosuria. (2 hours)

Diagnosis of hyperlipoproteinemia. Determination of the type of hyperlipoproteinemia according to Fedrickson. refrigerator test, performance and interpretation. Distinguishing between primary and secondary hyperlipoproteinemias. Diet for certain types of hyperlipoproteinemia. (2 hours)

#### **Allergic and immunological diseases**

20. Familiarization with in vivo tests (skin tests, dose-provocative tests, broncho-provocative and rhino-provocative tests). (2 hours)

Basics of diagnosis of immunological diseases (immunological analyses, interpretation of results. Basics of therapy of immunological diseases (2 hours)

Clinical treatment and therapy of patients

#### **Diseases of the locomotor system and systemic diseases of the connective tissue**

21. Getting to know the clinical picture of rheumatoid arthritis. clinical treatment and treatment of patients with rheumatoid arthritis. diagnosis of extra-articular manifestations. Evacuation of synovial fluid and local application of glucocorticoids. Treatment control. (4 hours)

Clinical treatment and treatment of patients with seronegative arthropathies (ankylosing spondylitis, Reiter's syndrome, psoriatic arthritis, enteropathic arthropathies). (4 hours)

Clinical treatment and treatment of patients with arthrosis of peripheral joints. Clinical treatment and treatment of patients with cervical and lumbar syndrome (4 hours)

22. Clinical treatment and treatment of metabolic arthropathies and infectious arthritis.

Analyzes of solar fluid. Clinical treatment and treatment of extra-articular rheumatism. Familiarization with the technique of local infiltration with glucocorticoids. (4 hours)

Clinical. treatment and treatment of systemic connective tissue diseases (systemic lupus erythematosus, progressive systemic sclerosis, polymyositis, dermatomyositis, polyarteritis).

Getting to know the importance of immunoserological tests in the diagnosis and monitoring of patients with systemic connective tissue diseases. (4 hours)

#### **Diseases of the blood and blood-forming organs**

23. Clinical treatment of patients with anemia with microscopic diagnosis. (4 hours)

Clinical treatment of patients with hereditary and acquired anemia with microscopic work and familiarization with diagnostic tests. (4 hours)

Clinical treatment of patients with chronic myeloproliferative diseases with microscopic diagnosis and familiarization with cytogenetic analyzes necessary for diagnosis. (4 hours)

24. Clinical treatment of patients with acute leukemia. treatment and microscopic diagnostics. (4 hours)

Clinical treatment of patients with malignant lymphomas, multiple myeloma and chronic lymphatic leukemia with microscopic work to prove them. (5 hours)

Clinical treatment of patients with hemorrhagic syndromes with familiarization with hemostasis tests necessary for their diagnosis. (4 hours)

#### **Diseases of glands with internal secretion**

25. Getting to know the general principles of diagnostics in endocrinology, the specifics of history and physical examination. Peculiarities of laboratory and other diagnostic methods. Principles of dynamic tests in examining endocrine functions. (2 hours)

Clinical treatment, diagnosis and treatment of patients with impaired hypothalamic-pituitary function.

Pituitary tumors. Diabetes insipidus. Hypopituitarism. Principles of substitution therapy. (4 hours)

Clinical treatment, diagnostic procedures and treatment of patients with thyroid gland.

Special treatment of patients with Graves-Based disease. (3 hours)

26. Goiters. Special treatment of heartburn. Differential diagnosis of nodular goiter. Thyroiditis. Malignant tumors of the thyroid gland. (3 hours)

Clinical treatment, diagnosis and treatment of patients with parathyroid gland diseases (2 hours)

Clinical treatment, diagnosis and treatment of patients with increased and decreased function of the adrenal cortex. Special treatment of patients with Cushing's syndrome and Addison's disease. (3 hours)

	<p>Clinical treatment of patients, differential diagnosis and treatment options for gonadal disorders. special treatment of polycystic ovary syndrome, Turner's and Klinefelter's syndrome. (2 hours)</p> <p>27. Clinical treatment, diagnosis and treatment of insulin-dependent and insulin-independent diabetes. principles of dietary nutrition. (5 hours)</p> <p>Treatment or presentation of patients with acute complications of diabetes. clinical treatment of patients with chronic complications of diabetes. (5 hours)</p> <p>Clinical treatment, differential diagnosis and treatment of metabolic bone diseases. Disorder of growth and development. (3 hours)</p> <p><b>Kidney and urinary tract diseases</b></p> <p>28. Diagnosis of diseases of the urinary system (3 hours)</p> <p>Clinical treatment and treatment of patients with acute renal failure (differential diagnosis. prerenal, renal and postrenal ABI). (3 hours)</p> <p>29. Clinical treatment and treatment of patients with chronic renal failure (3 hours) Introduction to hemodialysis, peritoneal dialysis and kidney transplantation (3 hours) Clinical treatment of patients with glomerular diseases with special emphasis on differential diagnosis and treatment of primary and secondary glomerular diseases. (4 hours)</p> <p>Clinical treatment and treatment of patients with tubulointerstitial diseases, urinary tract infections. (3 hours)</p> <p>30. Clinical treatment and treatment of patients with vascular diseases of the kidneys. (2 hours)</p> <p>Clinical treatment of patients with tumors of the urinary system</p> <p>Work in the nephrology clinic, echo cabinet and nephrology consultation for patients with diabetes and arterial hypertension (2 hours)</p>			
Compulsory literature				
Author/s	Publication title, Publisher	Year	Pages (from-to)	
Kasper, Fasuci	Harrison's <u>Principles of Internal medicine</u>			
Ian D Penman, Stuart H. Ralston, Mark W J Strachan, Richard Hobson	Davidson's Principles and Practice of Medicine			
Malcolm S. Thaler	ECG			
Additional literature				
Author/s	Publication title, Publisher	Year	Pages (from-to)	
Lynn S. Bickley	Bates' Guide to Physical Examination and History Taking			
Student responsibilities, types of student assessment and grading	Grading policy		Points	Percentage
	Pre-exam activities			
	lecture/exercise attendance		10	10%
	Seminar		5	5%
	ECG colloquium		15	15%
	Test		20	20%
	Final exam			
	practical part of the exam (ECG and X-ray analysis, history and physical examination - diagnosis, differential diagnosis		20	20%
	written exam		30	30%
Total		100	100 %	
Certification date	June 17th 2024.			

\* the number of necessary rows is added by using *insert mode*