



**Integrated academic studies medicine**

**FIVE YEAR**

2023/2024.

**PEDIATRICS**

Subject:

## **PEDIATRICS**

The course is evaluated with 14 ECTS. There are 7 hours of active teaching per week (3 hours of lectures, 3 hours of practice and 1 hour of seminar)

## Teachers:

| PB | name and surname   | E-mail address          | Title               |
|----|--------------------|-------------------------|---------------------|
| 1. | Biljana Vuletić    | sibil.kg@gmail.com      | Full professor      |
| 2. | Andjelka Stojković | andja410@mts.rs         | Full professor      |
| 3. | Sanja Knežević     | sanjaknez1980@yahoo.com | Assistant professor |
| 4. | Marija Radovanović | marijar9@verat.net      | Assistant professor |

## COURSE STRUCTURE:

| Semester | Name of the module | Week | Lectures weekly | practice weekly | seminar weekly | Teacher               |
|----------|--------------------|------|-----------------|-----------------|----------------|-----------------------|
| winter   | general pediatrics | 15   | 3               | 3               | 1              | All                   |
| summer   | special pediatrics | 15   | 3               | 3               | 1              |                       |
|          |                    |      |                 |                 |                | $\Sigma 90+90=30=210$ |

## EVALUATION:

The grade is equivalent to the number of points earned (see table). Points are earned in three ways:

### EXAM PREREQUISITES:

A student can earn up to 40 points: up to 30 points for activity during lectures and practical classes in both semesters, up to 10 points for seminars during both semesters.

### FINAL EXAM:

A student can earn up to 60 points by passing a Test (up to 10 points) and an oral exam (up to 50 points). In order for the student to pass the exam, he must achieve more than 50% of points on each of the defined elements of the pre-exam activities, that is, the final exam.

| Exam prerequisites  | Examination methods (maximum 100 points) |                  |                |
|---|--|------------------|----------------|
|   | No. of points:                           | Final exam       | No. of points: |
| Student's activity during Lectures and practical classes in winter semester | <b>15</b>                                | Test             | 10             |
| Student's activity during Lectures and practical classes in summer semester | <b>15</b>                                | oral examination | 50             |
| Seminars/homework/ test during both semesters                               | <b>10</b>                                | .....            |                |

### The final grade is formed as follows:

In order to pass the course, the student must obtain a minimum of 51 points, pass pre-exam activities and pass the final exam.

| number of points won | grade |
|----------------------|-------|
| 0 - 50               | 5     |
| 51 - 60              | 6     |
| 61 - 70              | 7     |
| 71 - 80              | 8     |
| 81 - 90              | 9     |
| 91 - 100             | 10    |

**LITERATURE:**

| <b>the name of the textbook</b>         | <b>authors</b>  | <b>publisher</b>                       | <b>the library</b> |
|---|---|--|--------------------|
| Nelson Textbook of Pediatrics, 21st ed. | Kliegman RM, St. Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM. | Philadelphia: Elsevier-Saunders; 2019. | Has                |
|   |   |  |                    |

## THE PROGRAM:

### TEACHING UNIT 1 (FIRST WEEK):

#### **GROWTH, DEVELOPMENT OF CHILDREN, DISORDER OF GROWTH AND DEVELOPMENT**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"><li>• Somatic development of the child, stages of growth</li><li>• Growth disorders - short growth and high growth</li><li>• Basic aspects of puberty and its disorders</li></ul> | <ul style="list-style-type: none"><li>• Practical application of percentile growth curves</li><li>• Laboratory diagnostics of short and tall stature</li><li>• Calculation of body mass index and assessment of children's nutritional status</li></ul> |

### TEACHING UNIT 2 ( SECOND WEEK):

#### **PUBERTY AND ADOLESCENCE**

| Lectures: 3 hours  | Practice: 3 hours   |
|--|---|
| <ul style="list-style-type: none"><li>• Developmental characteristics of normal puberty</li><li>• Premature puberty, classification, causes, diagnosis, treatment</li><li>• Delayed puberty, causes, diagnosis and treatment</li></ul> | <ul style="list-style-type: none"><li>• Practical application of percentile growth curves</li><li>• Determining the stage of puberty using Tanner tables</li><li>• Laboratory examination of premature and late puberty</li></ul> |

### TEACHING UNIT 3 (THIRD WEEK):

#### **VACCINATION OF CHILDREN**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"><li>• Immunization calendar in Serbia and the world</li><li>• Basic principles of vaccine and serum application</li><li>• General, special, epidemiological contraindications for immunization in children</li><li>• The principle of implementing a cold chain in the process of storing vaccines</li><li>• Significance and monitoring of vaccination effectiveness</li></ul> | <ul style="list-style-type: none"><li>• The choice of vaccine according to the age of the child, the epidemiological situation, possible contraindications and adverse reactions</li><li>• Recognition of an adverse reaction to a vaccine or serum, procedure for reporting adverse reactions</li><li>• Identifying failures in the implementation of the cold chain for the storage of vaccines</li></ul> |

### TEACHING UNIT 4 (FOURTH WEEK):

#### **HOMEOSTASIS AND DISORDERS OF WATER AND ELECTROLYTE TRANSPORT**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"><li>• Homeostasis of water and electrolytes in children</li><li>• Types of dehydration in children: hypernatremic, hyponatremic and isoosmolar</li><li>• Determining the type and degree of dehydration</li></ul> | <ul style="list-style-type: none"><li>• Practical determination of the degree and type of dehydration</li><li>• Practical consideration of fluid replacement and correction of acid-base and electrolyte imbalance</li></ul> |

- Therapeutic approach to water and electrolyte disorders
- Principles of oral and intravenous rehydration
- Causes and types of acid-base balance disorders, clinical picture and therapy

TEACHING UNIT 5 (FIFTH WEEK):

**NUTRITION OF A HEALTHY CHILD**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>• Natural nutrition;</li> <li>• Adapted milk formulas and cow's milk;</li> <li>• Nutrition of premature infants;</li> <li>• Artificial nutrition;</li> <li>• Mixed nutrition;</li> </ul> | <ul style="list-style-type: none"> <li>• Acquaintance of students with nutrition anamnesis, the technique of preparing food for infants and special diets</li> <li>• Practical assessment of nutritional status</li> <li>• Acquaintance with the most important symptoms and signs in children suffering from malnutrition and various forms of selective nutritional deficit</li> </ul> |

TEACHING UNIT 6 (SIXTH WEEK):

**EATING DISORDERS**

| Lectures: 3 hours  | Practice: 3 hours   |
|--|---|
| <ul style="list-style-type: none"> <li>• Therapeutic diets in pediatrics</li> <li>• Malnutrition</li> <li>• Rachitis and tetany</li> </ul> | <ul style="list-style-type: none"> <li>• Getting to know the objective examination of children and the method of assessing the state of nutrition</li> <li>• calculation of body mass index</li> <li>• the most important symptoms and signs in children suffering from malnutrition and various forms of selective nutritional deficiency</li> </ul> |

TEACHING UNIT 7 (SEVENTH WEEK):

**ALLERGIC DISEASES IN CHILDREN**

| Lectures: 3 hours  | Practice: 3 hours  |
|--|--|
| <ul style="list-style-type: none"> <li>• Basic characteristics of allergic immune response in children</li> <li>• Clinical picture of allergic diseases in children</li> <li>• Basic diagnostic procedures for allergic diseases in children</li> <li>• Types of prevention of allergic diseases in children</li> <li>• Atopic dermatitis, nutritional allergy</li> <li>• Allergic rhinitis and conjunctivitis in children</li> <li>• Drug allergy</li> <li>• Urticaria, angioedema, systemic anaphylaxis</li> </ul> | <ul style="list-style-type: none"> <li>• Introducing students to the implementation of diagnostic procedures in pediatric immunology and allergology</li> <li>• Introducing students to an adequate therapeutic approach to allergic diseases in children</li> </ul> |

TEACHING UNIT 8 ( EIGHT WEEK):

**GENETIC DISEASES AND SYNDROMES IN PEDIATRICS**

| Lectures: 3 hours  | Practice: 3 hours  |
|--|--|
| <ul style="list-style-type: none"><li>• Chromosomes and genes;</li><li>• Types of inheritance and hereditary diseases;</li><li>• Congenital anomalies;</li><li>• Genetic counseling center;</li><li>• Prenatal diagnostics;</li><li>• Neonatal screening for hereditary diseases</li></ul> | <ul style="list-style-type: none"><li>• Clinical examination of children with the most common monogenic hereditary diseases</li><li>• Clinical examination and observation of typical clinical signs in the most common chromosomal pathologies.</li><li>• Getting to know the possibilities of prenatal diagnosis</li><li>• Taking material and making a karyotype.</li><li>• Genetic counseling, the way the genetic counseling center functions</li></ul> |

TEACHING UNIT 9 (NINTH WEEK):

**PRIMARY AND SECONDARY IMMUNODEFICIENCY**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"><li>• Components and way of functioning of the immune system</li><li>• Immunological characteristics of breast milk</li><li>• Clinical features associated with immunodeficiencies</li><li>• Laboratory diagnosis of primary immunodeficiencies</li><li>• Division of primary immunodeficiencies</li><li>• Clinical picture, diagnosis and treatment of primary immunodeficiencies</li><li>• Secondary immunodeficiencies</li></ul> | <ul style="list-style-type: none"><li>• Introduction to students with anamnestic data and clinical findings in congenital immunodeficiency</li><li>• Presentation of laboratory algorithms in diagnosis of immunodeficiency</li><li>• Review of patients with immunodeficiency</li></ul> |



TEACHING UNIT 10 (TENTH WEEK):

**CONGENITAL METABOLIC DISORDES**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"><li>• frequency and types of inheritance of congenital mistakes of metabolism</li><li>• Clinical approach to the most common innate mistakes of metabolism in children</li><li>• Innate disorders of amino acid metabolism (phenylalanin, tyrosine, methionine, cysteine, triptophan, valin, leucin, isoleucin)</li><li>• Defects of lipid metabolism (lipidoses, mucopolipidosis)</li><li>• Defects of carbohydrate metabolism (glycogenosis, defects of galactose metabolism and mucopolisaccharidosis)</li></ul> | <ul style="list-style-type: none"><li>• Acidobase balance disorders: Causes, types, clinical picture and therapy</li><li>• Views of cases of the most common congenital disorders of metabolism</li></ul> |

ACHING UNIT 11 (ELEVENTH WEEK):

**PHARMACOTHERAPY IN CHILDREN**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"><li>• Pharmacokinetics and pharmacodynamics in children;</li><li>• Doses of medicines in children;</li><li>• Medicines and breastfeeding;</li><li>• Necessity of taking medication anamnesis.</li></ul> | <ul style="list-style-type: none"><li>• Dosage of antibiotics in children</li><li>• Dosage of antipyretics in children</li><li>• Roads of drug applications in children</li></ul> |

TEACHING UNIT 12 (TWELFTH WEEK):

**INFECTIOUS DISEASES IN CHILDREN**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>• rash fever</li> <li>• chickenpox</li> <li>• meningitis</li> <li>• measles</li> </ul> | <ul style="list-style-type: none"> <li>• diagnosis of febrile condition in children</li> <li>• Meningitis therapy in children</li> <li>• Lumbar puncture, examination of cerebral fluid</li> </ul> |

TEACHING UNIT 13 (THIRTEENTH WEEK):

**PHYSIOLOGY OF A NEWBORN**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"> <li>• Basic principles of adequate access to the newborn, Apgar Skor</li> <li>• Features of newborns born before or after term and with a small body mass for gestational age</li> <li>• Neurological status of a healthy newborn               <ul style="list-style-type: none"> <li>• Most common birth injuries</li> </ul> </li> <li>• Newborn hyperbillerubine: Physiological or pathological.</li> <li>• Pathology of the navel of the newborn • Newborn infections</li> <li>• Resuscitation and transport of life-endangered newborn</li> </ul> | <ul style="list-style-type: none"> <li>• Clinical overview of the newborn.</li> <li>• Neurological examination of the newborn.</li> <li>• Placing a Nazogastric catheter</li> </ul> |

TEACHING UNIT 14 (FOURTEENTH WEEK):

**PATHOLOGY OF THE NEWBORN**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>• Respiratory distress syndrome and surfactant application</li> <li>• Silent drainage and application of nitrogen oxide by unionatology</li> </ul> | <ul style="list-style-type: none"> <li>• Drugs in neonatology and dosage</li> <li>• Antimicrobial therapy in neonatology.</li> <li>• Reference values of laboratory analyzes in neonatology</li> </ul> |

- Bronchopulmonary dysplasia, oxygen therapy and mechanical ventilation in neonatology
- Congenital diaphragmatic hernia
- Necrotic Enterocolitis
- neonatal hepatitis
- Glucose metabolism disorders
- Intracranial bleeding
- neonatal hospital infections

TEACHING UNIT 15 (FIFTEENTH WEEK):

**PEDIATRIC CARDIOPULMONARY RESUSCITATION**

| Lectures: 3 hours  | Practice: 3 hours  |
|--|--|
| <ul style="list-style-type: none"> <li>• Resuscitation, emergency situations in pediatrics:</li> <li>• Cardiopulmonary-cerebral resuscitation in pediatrics;</li> <li>• Reanimation and therapeutic procedures in certain specific emergency situations in pediatrics (drowning, lightning - electric shock).</li> </ul> | <ul style="list-style-type: none"> <li>• Poisoning in childhood and prevention.</li> <li>• Urgent conditions and resuscitation in pediatrics.</li> </ul> |

## SECOND MODULE: SPECIAL PEDIATRICS

### TEACHING UNIT 1 ( FIRST WEEK):

#### PEDIATRIC CARDIOLOGY

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"><li>• Epidemiology and genetic basis of congenital heart defects: prevalence and etiology</li><li>• Embryonic development of the heart</li><li>• Fetal, transitional and neonatal circulation</li><li>• Evaluation of the cardiovascular system: radiology, ECG, echocardiography, stress test, magnetic resonance, cardiac catheterization</li><li>• Evaluation of children with congenital heart defects: no cyanosis with increased volume and increased pressure and with cyanosis and increased and decreased pulmonary flow</li><li>• Defects with left-right shunt: atrial septal defect-type secundum</li><li>• Atrioventricular septal defect</li><li>• Ventricular septal defect</li><li>• Ductus arteriosus persistence</li><li>• Obstructive heart defects: pathophysiology</li><li>• Pulmonary stenosis</li><li>• Aortic stenosis</li><li>• Coarctation of the aorta</li><li>• Mitral valve prolapse</li></ul> | <ul style="list-style-type: none"><li>• Introducing students with the specifics of anamnesis in pediatric cardiology</li><li>• Introducing students with diagnostic procedures in pediatric cardiology</li><li>• Interpretation of ECG in children and specifics of ECG</li><li>• Getting to know the treatment of congenital heart disease</li><li>• Getting to know the therapy of heart failure</li><li>• Getting to know the treatment of rhythm disorders in children</li></ul> |

TEACHING UNIT 2 ( SECOND WEEK):

**PEDIATRIC CARDIOLOGY**

| Lectures: 3 hours  | Practice: 3 hours  |
|--|--|
| <ul style="list-style-type: none"><li>• Cyanogenic heart defects with reduced pulmonary flow (hemodynamics)</li><li>• Tetralogy of Fallot</li><li>• Transposition of great arteries</li><li>• Pulmonary hypertension</li><li>• Rhythm disorders in children: sinus arrhythmia, supraventricular and ventricular rhythm disorders, bradyarrhythmias, syndrome of prolonged QT interval</li><li>• Infective endocarditis</li><li>• Myocardial diseases: myocarditis and cardiomyopathies: hypertrophic, dilatory, restrictive</li><li>• Diseases of the pericardium</li><li>• Heart failure, acute and chronic i cardiogenic shock</li><li>• Acquired heart defects</li><li>• Heart murmur in children</li><li>• Arterial hypertension in children</li></ul> | <ul style="list-style-type: none"><li>• The most important symptoms and signs of heart disease in children</li><li>• Chest inspection, palpation, auscultation</li><li>• Reading teleradiography of the heart</li><li>• Getting to know echosonographic diagnostics</li><li>• Intraducing with interventional procedures in diagnosis and therapy</li><li>• Medication and non-medication treatment rhythm disorders in children</li></ul> |

TEACHING UNIT 3 ( THIRD WEEK):

**PEDIATRIC ALLERGOLOGY**

| Lectures: 3 hours  | Practice: 3 hours   |
|--|---|
| <ul style="list-style-type: none"><li>• THE MOST COMMON EMERGENCIES IN ALLERGOLOGY:</li><li>• Anaphylactic shock</li><li>• Venoms</li><li>• THE MOST IMPORTANT ISSUES IN ALLERGOLOGY :</li><li>• Atopic dermatitis</li><li>• Food allergy</li><li>• Allergic rhinitis</li><li>• Urticaria</li><li>• Drug allergy</li></ul> | <ul style="list-style-type: none"><li>• Inspection, palpation, chest percussion and auscultation of children's lung fields</li><li>• Skill in examining a child exhibiting a severe systemic allergic reaction</li><li>• The skill of examining the skin and available mucous membranes in children</li><li>• The skill of recognizing the clinical picture of an allergic disease</li><li>• To systematize clinical symptoms and signs into a clinical picture of a particular allergic disease</li><li>• Skill in selection and implementation of diagnostic procedures in allergology</li><li>• The skill of choosing a protocol for the treatment of allergic disease in children</li><li>• The skill of choosing an elimination diet for a child with an allergic manifestation</li><li>• To give advice on non-pharmacological prophylaxis and monitor the implementation of pharmacological prophylaxis of allergic diseases in pediatrics</li></ul> |

TEACHING UNIT 4 (FOURTH WEEK):

**PEDIATRIC PULMONOLOGY**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <p>THE MOST COMMON EMERGENCIES IN PULMONOLOGY:</p> <ul style="list-style-type: none"> <li>• Acute respiratory failure</li> <li>• Acute asthma attack</li> <li>• Croup syndrome</li> <li>• Aspiration and incidental pneumonias (Drowning, Inhalation of gases from fires)</li> <li>• Threatening sudden infant death syndrome</li> </ul> <p>THE MOST IMPORTANT ISSUES IN PULMONOLOGY:</p> <ul style="list-style-type: none"> <li>• Congenital anomalies of the respiratory system</li> <li>• Respiratory distress syndrome and bronchopulmonary dysplasia</li> <li>• Respiratory infections (pharyngitis, croup, otitis, pneumonia, bronchiolitis)</li> <li>• Asthma in children</li> <li>• Lung tuberculosis</li> <li>• Cystic fibrosis and other rare respiratory diseases</li> <li>• Pleurisy, pneumothorax</li> <li>• Pulmonary echinococcosis</li> </ul> | <ul style="list-style-type: none"> <li>• Inspection, palpation, chest percussion and auscultation of children's lung fields</li> <li>• Recognition of the clinical picture and signs of mild, moderate and severe respiratory insufficiency in children, as well as its assessment using respiratory, heart rate, arterial oxygen saturation measured with a pulse oximeter and assessment of the state of consciousness</li> <li>• Recognition of basic disorders of respiratory function in children using spirometry, body plethysmography, impulse osciometry,</li> <li>• Differential diagnosis of typical and atypical respiratory infections using clinical, biochemical, radiological, microbiological and serological analyses.</li> <li>• Empirical choice of antibiotics for the treatment of respiratory infections of the upper and lower respiratory tract and lungs</li> <li>• The ability to recognize, diagnose and treat pleural effusion and pneumothorax in children</li> <li>• Recognition of asthma as a syndrome, criteria for the diagnosis of asthma and whinging bronchitis in children, differential diagnosis of asthma and whinging bronchitis and treatment protocols</li> <li>• Prevention of asthma and wheezing in children</li> <li>• Implementation of inhalation therapy in children</li> <li>• Differential diagnosis of stridor and respiratory tract foreign body in children</li> <li>• The skill of recognizing a patient with cystic fibrosis, performing diagnostic procedures, learning the basic facts from the treatment protocol for patients with CF.</li> <li>• The ability to recognize a person suffering from primary ciliary dyskinesia</li> <li>• The ability to recognize, diagnose and treat pulmonary tuberculosis in children</li> </ul> |



TEACHING UNIT 5 ( FIFTH WEEK):

**PEDIATRIC NEFROLOGY**

| Lectures: 3 hours  | Practice: 3 hours  |
|--|--|
| <ul style="list-style-type: none"> <li>• Diagnostics of kidney diseases in pediatrics</li> <li>• Kidney morphology: ECHO examination, radiological and radionuclide diagnostics, biopsy, etc.</li> <li>• Definition, etiology, pathogenesis and classification of glomerular kidney diseases</li> <li>• Nephritic syndrome: definition, etiology, clinical features, diagnosis and treatment</li> <li>• Nephrotic syndrome: definition, etiology, clinical features, diagnosis and treatment es</li> </ul> | <ul style="list-style-type: none"> <li>• The most important symptoms and signs of kidney diseases</li> <li>• Diagnostic algorithms for kidney diseases and interpretation of laboratory test results in kidney diseases</li> </ul> |

TEACHING UNIT 6 ( SIXTH WEEK):

**PEDIATRIC NEFROLOGY**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"> <li>• Definition, etiology, pathogenesis and classification of tubulopathies and tubulointerstitial kidney diseases</li> <li>• Definition, etiology and classification of acute and chronic renal failure, clinical features and treatment</li> <li>• Causative agents and pathogenetic mechanisms of urinary tract infections in children, diagnostic procedures for urinary infections in children and treatment</li> <li>• Etiology and pathogenesis of vesicoureteral reflux (VUR) in children, diagnosis and therapy</li> </ul> | <ul style="list-style-type: none"> <li>• Analysis and interpretation of urine sediment</li> </ul> |

TEACHING UNIT 7 ( SEVENTH WEEK):

**PEDIATRIC HEMATOLOGY**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>• Hematopoiesis and hematopoietic organs</li> <li>• Diseases of pluripotent cells of hematopoiesis - definition, etiopathogenesis, clinical findings, diagnosis and treatment</li> <li>• Definition, etiology, pathophysiological classification, etiological factors, pathogenetic mechanisms of anemia, clinical findings, diagnosis and treatment</li> <li>• Intraduction with normal granulocytopoiesis and its disorders</li> <li>• Quantitative and qualitative disorders of the granulocytes</li> <li>• Diseases of the monocyte-macrophage cells</li> <li>• Acute leukemias in children</li> <li>• Chronic granulocytic leukemia - definition, etiopathogenesis, clinical imaging, diagnosis and treatment</li> <li>• Hodgkin's and non-Hodgkin's lymphoma - definition, etiopathogenesis, clinical findings, diagnosis and treatment</li> <li>• CNS tumors and embryonic tumors in children<br/>nephroblastoma, neuroblastoma, rhabdomyosarcoma, retinoblastoma - definition, etiopathogenesis, clinical findings, diagnosis and treatment</li> </ul> | <ul style="list-style-type: none"> <li>• Intraduction the basics of laboratory tests that are applied during the diagnosis of hematopoietic stem cell disease</li> </ul> |

TEACHING UNIT 8 ( EIGHT WEEK):

**PEDIATRIC HEMATOLOGY**

| Lectures: 3 hours  | Practice: 3 hours   |
|--|---|
| <ul style="list-style-type: none"> <li>• Modern concept of hemostasis</li> <li>• Hemorrhagic syndromes - definition, classification, etiopathogenesis, diagnosis</li> <li>• Thrombocytopathies - definition, etiopathogenesis, clinical features , diagnosis and treatment</li> <li>• Vasculopathies - definition, etiopathogenesis, clinical features , diagnosis and treatment</li> <li>• Coagulopathies - definition, etiopathogenesis, clinical features, diagnosis and treatment</li> <li>• Thrombophilia - definition, clinical features, diagnosis and treatment</li> <li>• Application of blood and blood derivatives in pediatrics</li> </ul> | <ul style="list-style-type: none"> <li>• Learn the most common symptoms and clinical signs of a patient suffering from hematopoietic stem cell disease</li> </ul> |

TEACHING UNIT 9 ( NINTH WEEK):

**PEDIATRIC ENDOCRINOLOGY**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>• Thyroid diseases: anatomy and physiology of the thyroid, axis of the thyroid-pituitary-hypothalamuspuesc, itima and hypothyroidism, hyperthyroidism, goiter, autoimmune diseases of the thyroid</li> <li>• Adrenal diseases; anatomy and physiology of the adrenal gland, steroidogenesis, adrenal-pituitary-hypothalamus axis, Sy Cushing adrenal adrenal insufficiency, congenital hyperplasia</li> <li>• Parathyroid diseases: metabolism of Ca, P, Mg and vitamin D, hypocalcemia; hypercalcemia, hypoparathyroidism, hyperparathyroidism</li> </ul> | <ul style="list-style-type: none"> <li>• Acquaintance of students with the principles f anamnesis in in pediatric endocrinology</li> <li>• Acquaintance of students with symptoms and signs of endocrinopathy in children</li> </ul> |

TEACHING UNIT 10 ( TENTH WEEK):

**PEDIATRIC ENDOCRINOLOGY**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>Diseases of the pituitary gland/hypothalamus: anatomy and physiology of the pituitary gland/hypothalamus, hypopituitarism, regulation of water circulation, hypothalamic D. insipidus, syndrome of inadequate secretion of ADH (SIADH)</li> <li>Diabetes mellitus in children:<br/>DMT1: etiopathogenesis, clinical features , acute and chronic complications, principles of therapy<br/>The concept of insulin resistance, DMT2, disorder glucose tolerance<br/>Appearance of the fetus and newborn mothers with DM</li> </ul> | <ul style="list-style-type: none"> <li>Determine the degree of nutrition of the child, calculate the value of BMI (body mass index) and determine the nutritional disorders of the child using BMI percentile curves</li> <li>To determine the stages of puberty development (according to Tanner) and diagnoses gynecomastia</li> <li>To interpret the results of basal levels: sex hormones, thyroid hormones, adrenal hormones, parathyroid, pituitary</li> </ul> |

TEACHING UNIT 11 ( ELEVENTH WEEK):

**PEDIATRIC GASTROENTEROLOGY**

| Lectures: 3 hours   | Practice: 3 hours  |
|---|--|
| <ul style="list-style-type: none"> <li>Children's GIT physiology, digestion and absorption</li> <li>Diseases of the oral cavity</li> <li>Acute diarrhea</li> <li>Chronic enteropathies</li> </ul> | <ul style="list-style-type: none"> <li>Intruding the students with the most important symptoms and signs accompanying GIT diseases</li> <li>Getting to know the objective examination of the abdomen and special examination method</li> </ul> |

TEACHING UNIT 12 ( TWELFTH WEEK):

**PEDIATRIC GASTROENTEROLOGY**

| Lectures: 3 hours  | Practice: 3 hours  |
|--|--|
| <ul style="list-style-type: none"> <li>• Ulcer disease</li> <li>• Inflammatory bowel diseases</li> <li>• Cholestatic liver diseases</li> <li>• Acute pancreatitis in children</li> </ul> | <ul style="list-style-type: none"> <li>• Mastering the imaging techniques used in diagnostics (endoscopy, rectal examination, as well as analysis of all changes in the color of the skin, stool and urine, especially in newborns)</li> </ul> |

TEACHING UNIT 13 ( THIRTEENTH WEEK):

**PEDIATRIC NEUROLOGY**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"> <li>• Congenital anomalies of the nervous system and syndromes (clinical features , diagnosis, and therapy)</li> <li>• Early cerebral damage (hypoxic ischemic encephalopathy intracranial hemorrhage, intrauterine brain infections, birth injuries)</li> <li>• Floppy infant syndrom (differential diagnosis congenital and acquired diseases that cause hypotonia)</li> </ul> | <ul style="list-style-type: none"> <li>• Specifics of medical history in children's neurology</li> <li>• Neurological examination of children (assessment muscle tone, primitive reflexes, examination of cranial nerves, physiological and pathological reflexes, tests of the cerebellum, meningeal signs)</li> </ul> |

TEACHING UNIT 14 ( FOURTEENTH WEEK):

**PEDIATRIC NEUROLOGY**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"> <li>• Seizure</li> <li>• Headache and migraine (classification, clinical features , diagnosis, therapy, types of migraine, tension headache)</li> <li>• Infections: meningitis, encephalitis,</li> </ul> | <ul style="list-style-type: none"> <li>• Lumbar puncture and examination of cerebrospinal fluid (cytological, microbiological, bacteriological)</li> <li>• Ultrasound examination of the brain</li> <li>• Neuroradiological diagnostic methods</li> </ul> |

- Diagnostic procedures in pediatrics neurology (lumbar puncture, radiography skull, CT (computed tomography) of the endocranium, NMR (nuclear magnetic resonance) of the endocranium, and MRA magnetic angiography of the endocranium and neck, PET (positron emission tomography, (indications and interpretation of findings), EMNG (electronuromyography), EEG (electroencephalography), EP (evoked potentials), VEP (visual), SEP (somatosensory)
- Therapy of neurological diseases (medication, habilitation, surgery)

TEACHING UNIT 15 ( FIFTEENTH WEEK):

**RHEUMATIC DISEASES OF CHILDHOOD, RHEUMATIC FEVER AND POISONING IN PEDIATRICS**

| Lectures: 3 hours   | Practice: 3 hours   |
|---|---|
| <ul style="list-style-type: none"> <li>• Evaluation of suspected rheumatic disease: etiology and pathogenesis, clinical manifestations, physical examination and laboratory findings</li> <li>• Treatment of rheumatic diseases: nonsteroidal antirheumatic drugs, methotrexate, glucocorticoids, other drugs, biological drugs</li> <li>• Juvenile rheumatoid arthritis: etiology, pathogenesis, clinical features, diagnosis, laboratory and treatment</li> <li>• Post-infectious arthritis and other related conditions: pathogenesis, clinical manifestations, diagnosis and treatment</li> <li>• Systemic lupus erythematosus: etiology, epidemiology, pathogenesis, clinical manifestations, diagnosis, laboratory findings and treatment</li> <li>• Kawasaki disease: etiology, epidemiology, pathogenesis, clinical manifestations, diagnosis, laboratory and treatment</li> <li>• Syndromes accompanied by vasculitis</li> <li>• Henoch Schonlein purpura: etiology, epidemiology, pathogenesis, clinical manifestations, diagnosis, laboratory and treatment</li> <li>• Rheumatic fever: etiology, epidemiology, pathogenesis, clinical manifestations, diagnosis, laboratory and treatment and prevention</li> <li>• Poisoning in pediatrics: etiology, diagnosis and treatment</li> </ul> | <ul style="list-style-type: none"> <li>• Specifics of anamnesis in children's rheumatology</li> <li>• Specifics of anamnesis in children suffering from rheumatic fever</li> <li>• Clinical examination of the locomotor system in children</li> <li>• Tests for the diagnosis of systemic diseases connective tissues in children</li> <li>• Drug doses in pediatric rheumatology</li> </ul> |

## WEEKLY COURSE SCHEDULE

| COURSE                     | WEDNESDAY                               | THURSDAY  |
|----------------------------|---|---|
| <b>PEDIATRICS</b><br>(3+3) | <b>LECTURES</b><br>08:00-10:15<br>(H44) | <b>PRACTICE*</b><br><b>13:00 - 15:15</b><br>(Clinic for Pediatrics) |

| <b>module</b> | <b>week</b> | <b>type</b> | <b>method unit name</b>   | <b>teacher</b>                |
|---------------|-------------|-------------|---|-------------------------------|
| <b>1</b>      | <b>1</b>    | <b>L</b>    | Growth, development of children, disorder of growth and development | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>1</b>    | <b>P</b>    |   | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>2</b>    | <b>L</b>    | Puberty and adolescence   | Asst. Prof. dr Sanja Knezevic |
| <b>1</b>      | <b>2</b>    | <b>P</b>    |   | Asst. Prof. dr Sanja Knezevic |
| <b>1</b>      | <b>3</b>    | <b>L</b>    | Vaccination of children   | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>3</b>    | <b>P</b>    |   | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>4</b>    | <b>L</b>    | Homeostasis and disorders of water and electrolyte transport        | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>4</b>    | <b>P</b>    |   | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>5</b>    | <b>L</b>    | Nutrition of a healthy child  | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>5</b>    | <b>P</b>    |   | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>6</b>    | <b>L</b>    | Eating disorders  | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>6</b>    | <b>P</b>    |   | Prof. dr Biljana Vuletic      |



| <b>module</b> | <b>week</b> | <b>type</b> | <b>method unit name</b>                      | <b>teacher</b>                |
|---------------|-------------|-------------|--|-------------------------------|
| <b>1</b>      | <b>7</b>    | <b>L</b>    | Allergic diseases in children                | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>7</b>    | <b>P</b>    |  | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>8</b>    | <b>L</b>    | Genetic diseases and syndromes in pediatrics | Asst. Prof. dr Sanja Knezevic |
| <b>1</b>      | <b>8</b>    | <b>P</b>    |  | Asst. Prof. dr Sanja Knezevic |
| <b>1</b>      | <b>9</b>    | <b>L</b>    | Primary and secondary immunodeficiency       | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>9</b>    | <b>P</b>    |  | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>10</b>   | <b>L</b>    | Congenital metabolic disorders               | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>10</b>   | <b>P</b>    |  | Prof. dr Biljana Vuletic      |
| <b>1</b>      | <b>11</b>   | <b>L</b>    | Pharmacotherapy in children                  | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>11</b>   | <b>P</b>    |  | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>12</b>   | <b>L</b>    | Infectious diseases in children              | Prof. dr Andjelka Stojkovic   |
| <b>1</b>      | <b>12</b>   | <b>P</b>    |  | Prof. dr Andjelka Stojkovic   |

| module | week | type | method unit name                        | teacher                       |
|--------|------|------|---|-------------------------------|
| 1      | 13   | L    | Physiology of a newborn                 | Asst. Prof. dr Sanja Knezevic |
| 1      | 13   | P    |   | Asst. Prof. dr Sanja Knezevic |
| 1      | 14   | L    | Pathology of the newborn                | Asst. Prof. dr Sanja Knezevic |
| 1      | 14   | P    |   | Asst. Prof. dr Sanja Knezevic |
| 1      | 15   | L    | Pediatric cardiopulmonary resuscitation | Asst. Prof. dr Sanja Knezevic |
| 1      | 15   | P    |   | Asst. Prof. dr Sanja Knezevic |

| module | week | type | method unit name     | teacher   |
|--------|------|------|----------------------|---|
| 2      | 1    | L    | Pediatric cardiology | Asst. Prof. dr Sanja Knezevic   |
| 2      | 1    | P    |                      | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| 2      | 2    | L    | Pediatric cardiology | Asst. Prof. dr Sanja Knezevic   |

| <b>module</b> | <b>week</b> | <b>type</b> | <b>method unit name</b> | <b>teacher</b>  |
|---------------|-------------|-------------|-------------------------|---|
| <b>2</b>      | <b>2</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>3</b>    | <b>L</b>    | Pediatric allergology   | Prof. dr Andjelka Stojkovic   |
| <b>2</b>      | <b>3</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>4</b>    | <b>L</b>    | Pediatric pulmonology   | Prof. dr Andjelka Stojkovic   |
| <b>2</b>      | <b>4</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>5</b>    | <b>L</b>    | Pediatric nefrology     | Asst. Prof. dr Sanja Knezevic   |
| <b>2</b>      | <b>5</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>6</b>    | <b>L</b>    | Pediatric nefrology     |   |

| <b>module</b> | <b>week</b> | <b>type</b> | <b>method unit name</b> | <b>teacher</b>  |
|---------------|-------------|-------------|-------------------------|---|
| <b>2</b>      | <b>6</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>7</b>    | <b>L</b>    | Pediatric hematology    | Asst. Prof. dr Marija Radovanovic   |
| <b>2</b>      | <b>7</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>8</b>    | <b>L</b>    | Pediatric hematology    | Asst. Prof. dr Marija Radovanovic   |
| <b>2</b>      | <b>8</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>9</b>    | <b>L</b>    | Pediatric endocrinology | Asst. Prof. dr Marija Radovanovic   |
| <b>2</b>      | <b>9</b>    | <b>P</b>    |                         | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>10</b>   | <b>L</b>    | Pediatric endocrinology |   |

| <b>module</b> | <b>week</b> | <b>type</b> | <b>method unit name</b>    | <b>teacher</b>  |
|---------------|-------------|-------------|----------------------------|---|
| <b>2</b>      | <b>10</b>   | <b>P</b>    |                            | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>11</b>   | <b>L</b>    | Pediatric gastroenterology | Prof. dr Biljana Vuletic  |
| <b>2</b>      | <b>11</b>   | <b>P</b>    |                            | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>12</b>   | <b>L</b>    | Pediatric gastroenterology | Prof. dr Biljana Vuletic  |
| <b>2</b>      | <b>12</b>   | <b>P</b>    |                            | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>13</b>   | <b>L</b>    | Pediatric neurology        | Doc. dr Marija Radovanovic  |
| <b>2</b>      | <b>13</b>   | <b>P</b>    |                            | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>14</b>   | <b>L</b>    | Pediatric neurology        |   |

| <b>module</b> | <b>week</b> | <b>type</b> | <b>method unit name</b>   | <b>teacher</b>  |
|---------------|-------------|-------------|---|---|
| <b>2</b>      | <b>14</b>   | <b>P</b>    |   | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |
| <b>2</b>      | <b>15</b>   | <b>L</b>    | Rheumatic diseases of childhood, reumatic fever and poisoning in pediatrics | Doc. dr Sanja Knezevic  |
| <b>2</b>      | <b>15</b>   | <b>P</b>    |   | Prof. dr Biljana Vuletic<br>Prof. dr Andjelka Stojkovic<br>Asst. Prof. dr Sanja Knezevic<br>Asst. Prof. dr Marija Radovanovic |