**FacultY MEDICINE**

**STUDY PROGRAM 0912.1 medicine**

**“NATALIA GHEORGHIU” chair OF PEDIATRIC SURGERY, OPTHOPEDICS AND ANESTHESIOLOGY**

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| APPROVEDat the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum in MedicineMinutes No.\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_Chairman: MD, PhD, associate professorPADURE ANDREI\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | APPROVEDat the Council meeting of the MedicineFaculty MedicineMinutes No.\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_Dean of Faculty: MD, PhD, university professor)PLĂCINTĂ GHEORGHE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
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## APPROVED

approved at the meeting of the ”Natalia Gheorghiu” Department of Pediatric Surgery, Orthopedics and Anesthesiology

Minutes No. \_21\_ of 24.04.2024

Head of Chair: MD, PhD, university professor

BERNIC JANA\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SYLLABUS**

DISCIPLINE **PEDIATRIC SURGERY**

**Integrated studies / Cycle I, License**

Type of course: **Compulsory**

Curriculum developed by the team of authors:

Bernic Jana, MD, PhD, university professor

Jalba Alexandru, PhD, associate professor

Chisinau, 2024

1. **INTRODUCTION**
* **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program**

**Pediatric surgery** is a [specialty](https://en.wikipedia.org/wiki/Medical_specialty) of involving the surgery of fetuses, infants, children, adolescents, and young adults. Subspecialties of pediatric surgery itself include: [neonatal](https://en.wikipedia.org/wiki/Neonatology) surgery and [fetal surgery](https://en.wikipedia.org/wiki/Fetal_surgery). Other areas of surgery also have pediatric specialties of their own that require further training during the residencies and in a fellowship: pediatric cardiothoracic, pediatric urology, pediatric neurosurgery, pediatric emergency surgery, pediatric hepatological and gastrointestinal surgery, pediatric orthopedic surgery, pediatric plastic and reconstructive surgery, and pediatric oncological surgery.

* **Mission of the curriculum (aim) in professional training is**:
	+ Study of the congenital malformations and acquired surgical diseases in children, as well as of the diagnostic and treatment peculiarities; study of the particularities of anesthesiology and intensive care.
	+ Formation at the future doctors of the theoretical base and practical skills; Learning of diagnostic methods, medical tactics in several congenital malformations and acquired surgical diseases in children.
	+ Providing emergency care for children with congenital malformations and acquired surgical diseases.
* **Language (s) of the course:** Romanian, English, French, Russian;
* **Beneficiaries:** students of the VI year, Faculty of Medicine, Specialty Medicine
1. **MANAGEMENT OF THE DISCIPLINE**

|  |  |
| --- | --- |
| Code of discipline | **S.12.0.103** |
| Name of the discipline | **Pediatric Surgery** |
| Person(s) in charge of the discipline | **Bernic Jana, MD, PhD, university professor** |
| Year  | **VI** | Semester/Semesters | **XI-XII** |
| Total number of hours, including: | **90** |
| Lectures | **16** | Practical/laboratory hours | **16** |
| Seminars | **16** | Self-training | **42** |
| Form of assessment | **Exam** | Number of credits | **3** |

1. **TRAINING aims within the discipline**

# *At the end of the discipline study the student will be able to:*

# *at the level of knowledge and understanding:*

* + to recognize congenital malformations and developed surgical diseases in children;
	+ to know specific features of the onset and evolution of several surgical diseases in children;
	+ to understand methodology of examination and specific characteristics of children with surgical diseases;
	+ timing of performing surgery;
	+ the essential detail that should be emphasized is that the same disease in adults and children in no case should be treated identically;
	+ rehabilitation of children with surgical diseases.

# *at the application level:*

* + to take and to assess correctly anamnestic data;
	+ to perform the examination of a child with suspected surgical disease;
	+ to be able to make a presumptive diagnosis;
	+ to estimate the severity of a patient’s condition;
	+ to be able to provide emergency care in urgent cases.
	+ teaching Pediatric Surgery is based on the main principle - from semiology to a detailed study of each disease.

# *at the integration level:*

* + to realize the importance of Pediatric Surgery in the context of Medicine;
	+ to regard creatively the problems of fundamental medicine:
	+ to deduct interrelations between Pediatric Surgery and other fundamental disciplines;
	+ to possess abilities to implement and integrate the received knowledge of Pediatric Surgery and fundamental disciplines;
	+ to be able to assess and self-appraise objectively the knowledge in the field.
	+ to be able to implement the received knowledge in scientific research activity.
1. **provisional terms and conditions**

Pediatric Surgery is a clinical surgical discipline in the university training of medical doctors. Childhood period has specific features in its evolution, beginning with birth and ending with adolescence.

Pediatric Surgery is a fundamental discipline that differs from the adult surgery. The field of Pediatric Surgery is more oriented on the congenital malformations and acquired surgical diseases of childhood. During the course the future specialist studies and endorses practical skills and modern methods of diagnosis, treatment and prevention of various surgical diseases in children. During the pediatric surgery course students apply and integrate their fundamental knowledge (anatomy, physiology, microbiology, etc.) with other disciplines – pediatrics, adult surgery, etc.

1. **themes and ESTIMATE ALLOCATION of hours**

***Lectures, practical hours/ laboratory hours/seminars and self-training***

| No.d/o | ТHEME | Number of hours |
| --- | --- | --- |
| Lectures | Practical hours | Self-training |
|  | Peculiarities of Pediatric Surgery. The examination methods in pediatric surgery. Acquired and congenital esophageal and stomach diseases. Esophageal atresia. Tracheoesophageal fistula. Achalasia. Esophageal burn stenosis. Esophageal foreign bodies. Hypertrophic pyloric stenosis. Definition. Etiology and pathogenesis. Classification. Clinical picture. Diagnosis. Differential diagnosis. Treatment. Complications. | 2 | 4 | 5 |
|  | Anterior abdominal wall and diaphragmatic congenital pathology. Omphalocele. Gastroschisis. Umbilical fistulas. Abdominal wall hernias. Diaphragmatic hernia and eventration. Definition. Etiology and pathogenesis. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. Complications.  | 2 | 4 | 5 |
|  | Congenital small and large bowel malformations. Small bowel malformations. Meconium ileus. Anorectal and colonic malformations. Hirschsprung disease. Anorectal malformations. Definition. Etiology and pathogenesis. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. Complications. | 2 | 4 | 5 |
|  | Pediatric acquired bowel obstructions. Intussusception. Volvulus. Peritoneal adhesions. Liver and biliary malformations in children. Biliary atresia. Etiology and pathogenesis. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. Complications. | 2 | 4 | 5 |
|  | Acute appendicitis in children. Diagnostic and treatment peculiarities in newborns, infants, toddlers. Peritonitis in children. Peculiarities in premature babies, newborns, infants and toddlers. Digestive hemorrhages in children. Superior digestive hemorrhage. Inferior digestive hemorrhage. Peculiarities in newborns, infants and toddlers.  | 2 | 4 | 5 |
|  | Cervical pathology. Thyroglossal and brachial cleft cysts. Cervical lymphangiomas. Acute cervical lymphadenitis. Bronchopulmonary malformations in children. Cystic pulmonary malformations. Lobar emphysema. Congenital bronchiectasis. Definition. Etiology and pathogenesis. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. Complications. | 2 | 4 | 6 |
|  | Urinary system malformations. Kidney, ureter, bladder, urethral malformations. Embryology. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. Infravesical obstruction.Urological trauma. Acute scrotum in children. Abdominal trauma. Etiology and pathogenesis. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. Complications.Abdominal palpable mass in children.Abdominal and mediastinal tumors in children. Soft tissue tumors. Bone tumors. Sacrococcygeal teratomas. | 2 | 4 | 5 |
|  | Musculoskeletal system malformations. Torticollis. Congenital clubfoot. Hip dislocation. Definition. Classification. Clinical signs. Diagnosis. Treatment. Complications. Fractures in children. Diagnostic and treatment peculiarities. Obstetrical traumas. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment.Surgical infection in children. Purulent inflammatory pathologies of soft tissues. Extensive necrotic phlegmon. Furunculosis. Mastitis. Omphalitis. Acute hematogenous osteomyelitis. Epiphyseal osteomyelitis. Chronic osteomyelitis. Arthritis. Complications.Acute necrotizing pneumonia in children. Definition. Etiology and pathogenesis. Classification. Clinical signs. Diagnosis. Differential diagnosis. Treatment. | 2 | 4 | 6 |
| **Total**  | **16** | **32** | **42** |

1. **PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE**

Mandatory essential practical tools are:

* Anamnesis. Collection and correct interpretation of the anamnesis data.
* To know the diagnostic examination methodology of the child with different congenital and acquired diseases of neck region, vertebral column, chest, chest organs, in acute and chronic bronchopulmonary pathologies, esophageal malformations, esophageal perforation, mediastinitis, esophageal burns, esophageal and airways foreign bodies, diaphragmatic hernias, congenital and acquired diseases of the abdominal organs, locomotor apparatus.
* To interpret correctly the laboratory results:
* Blood, urine, biochemical analasis, acid-base balance, coagulation.
* X-ray films reading:
	+ The radiological signs in esophageal atresia, hypertrophic pyloric stenosis
	+ Esophageal perforation. Mediastinitis, pneumomediastinitis
	+ Congenital bronchopulmonary malformations
	+ Acute purulent necrotizing pneumonias
	+ Diaphragmatic hernia and eventration
	+ Cavitary abdominal organs perforation
	+ Bowel obstructions. Ano-rectal malformations
	+ Urologic diseases
	+ Congenital hip dislocation
	+ Tumors of diverse location
* Completing of medical records.
1. **OBJECTIVES of CONTENT UNITS**

| **Objectives** | **Content units** |
| --- | --- |
| **Theme (chapter) 1. Peculiarities of pediatric surgery, orthopedics, urology and oncology. Congenital malformations and acquired surgical diseases of the stomach and esophagus.** |
| * To define congenital malformations and acquired surgical disease of the stomach and esophagus.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of the esophageal atresia, tracheoesophageal fistula and esophageal achalasia.
* To know the etiology, pathogenesis, clinical picture, diagnosis and treatment of esophageal burns and foreign bodies.
* To know the etiology, pathogenesis, clinical picture, diagnosis and treatment of hypertrophic pyloric stenosis.
 | 1. To completely collect the anamnesis. To know methods of examination of children with congenital malformations and acquired surgical disease of the stomach and esophagus.
2. To apply gained knowledge from the previously studied disciplines.
3. To formulate conclusions in the establishment of the diagnosis congenital malformations and acquired surgical disease of the stomach and esophagus, to develop personal opinion regarding studied pathology.
 |
| **Theme (chapter) 2. Congenital pathology of the anterior abdominal wall.** |
| * To define congenital malformations of the anterior abdominal wall.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of omphalocele, gastroschisis and umbilical fistula.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of congenital inguinal and umbilical hernias.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of congenital diaphragmatic hernias.
 | 1. To completely collect the anamnesis. To know methods of examination of children with congenital malformations of the anterior abdominal wall and diaphragm.
2. To apply gained knowledge from the previously studied disciplines.
3. *To formulate conclusions in the establishment of the diagnosis of congenital malformations of the anterior abdominal wall and diaphragm, to develop personal opinion regarding studied pathology.*
 |
| **Theme (chapter) 3. Congenital malformations of small and large bowel.** |
| * To define the small and large bowel congenital malformations.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of duodenal, small and large bowel atresia and stenosis.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of meconial ileus.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of congenital megacolon and anorectal malformations.
 | 1. To completely collect the anamnesis. To know methods of examination of children with duodenal, small and large bowel congenital malformations.
2. To apply gained knowledge from the previously studied disciplines.
3. *To formulate conclusions in the establishment of the diagnosis of duodenal, small and large bowel congenital malformations, to develop personal opinion regarding studied pathology.*
 |
| **Theme (chapter) 4. Acquired bowel obstructions in children, liver and biliary congenital malformations.** |
| * To define the acquired bowel obstructions in children.
* To define liver and biliary congenital malformations.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of bowel intussusception, volvulus and peritoneal adhesions.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of liver and biliary congenital malformations.
 | 1. To completely collect the anamnesis. To know methods of examination of children with acquired bowel obstructions.
2. To know methods of examination of children with liver and biliary congenital malformations.
3. To apply gained knowledge from the previously studied disciplines.
4. To formulate conclusions in the establishment of the diagnosis of acquired bowel obstruction and liver and biliary congenital malformations, to develop personal opinion regarding studied pathology.
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| Theme (chapter) 5. Appendicitis and peritonitis in children. Digestive hemorrhage in children. |
| * To define acute appendicitis and peritonitis in children.
* To define digestive hemorrhage in children.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of the acute appendicitis and peritonitis and their peculiarities in children.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of digestive hemorrhage in children.
 | 1. To completely collect the anamnesis. To know methods of examination of children with acute appendicitis and peritonitis.
2. To know methods of examination of children with gastrointestinal hemorrhages.
3. To apply gained knowledge from the previously studied disciplines.
4. To formulate conclusions in the establishment of the diagnosis of acute appendicitis, peritonitis, gastrointestinal hemorrhage, to develop personal opinion regarding studied pathology.
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| Theme (chapter) 6. Cervical surgical pathology. Bronchopulmonary congenital malformations.  |
| * To define thyroglossal duct cyst, brachial cleft cyst and cervical lymphangioma.
* To define bronchopulmonary congenital malformations.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of the thyroglossal duct cyst, brachial cleft cyst and cervical lymphangioma.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of the bronchopulmonary congenital malformations.
 | 1. To completely collect the anamnesis. To know methods of examination of children with thyroglossal duct cyst, brachial cleft cyst and cervical lymphangioma.
2. To know methods of examination of children with congenital bronchopulmonary malformations.
3. To apply gained knowledge from the previously studied disciplines.
4. To formulate conclusions in the establishment of the diagnosis of thyroglossal duct cyst, brachial cleft cyst and cervical lymphangioma, congenital bronchopulmonary malformations, to develop personal opinion regarding studied pathology.
 |
| Theme (chapter) 7. Urinary system malformations. Urotrauma in children. Acute scrotum syndrome. Abdominal traumas. Tumors in children. |
| * To define congenital urinary malformations.
* To define urotrauma and abdominal trauma.
* To define pediatric tumors (mediastinal, abdominal, retroperitoneal, soft tissue).
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of the urinary tract congenital malformations.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of retroperitoneal and abdominal traumas in children.
 | 1. To completely collect the anamnesis. To know methods of examination of children with urinary tract congenital malformations.
2. To know methods of examination of children with retroperitoneal and abdominal traumas.
3. To know methods of examination of children with mediastinal, abdominal, retroperitoneal and soft tissue tumors.
4. To apply gained knowledge from the previously studied disciplines.
5. To formulate conclusions in the establishment of the diagnosis of urinary tract malformations, retroperitoneal and abdominal traumas, tumors, to develop personal opinion regarding studied pathology.
 |
| Theme (chapter) 8. Congenital malformations and injuries of the locomotor apparatus. Surgical infection in children. |
| * To define congenital malformations and injuries of the musculoskeletal system (torticollis, congenital clubfoot, hip dislocation, fractures in children, obstetrical injuries).
* To define surgical infection in children (extensive necrotic phlegmon, furunculosis, mastitis, omphalitis, acute hematogenous osteomyelitis, arthritis, acute bacterial destructive pneumonia).
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of congenital malformations and injuries of the locomotor apparatus.
* To know the etiology, pathogenesis, classification, clinical picture, diagnosis and treatment of surgical infection in children.
 | 1. To completely collect the anamnesis. To know methods of examination of children with musculoskeletal congenital malformations.
2. To know methods of examination of children with musculoskeletal traumas.
3. To know methods of examination of surgical infection in children.
4. To know methods of conservative and surgical orthopedic treatment of congenital malformations and injuries of the musculoskeletal system.
5. To know methods of medical and surgical treatment of surgical infection in children.
6. To know the technics of prevention of congenital malformations and acquired injuries of the locomotor apparatus.
7. To apply gained knowledge from the previously studied disciplines.
8. To integrate the obtained results in medical practice.
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1. **PROFESSIONAL (specific (Sc)) and TRANSVERSAL (Tc) COMPETENCES AND STUDY FINALITIES**
* **Professional (specific) (Sc) competences**
* PC1. The responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force.
* PC2. Adequate knowledge of the sciences about the structure of the body, the physiological functions and the behavior of the human body in various physiological and pathological states, as well as the existing relationships between the state of health, the physical and the social environment.
* PC3. Solving clinical situations by developing the diagnosis, treatment and rehabilitation plan in various pathological situations and selecting the appropriate therapeutic procedures for them, including the provision of emergency medical assistance.
* PC4. Promoting a healthy lifestyle, applying preventive measures and self-care.
* PC5. Interdisciplinary integration of the doctor's work in the team with the efficient use of all resources.
* PC6. Conducting scientific research in the field of health and other branches of science.
* **Transversal competences (tc)**
* TC1. Autonomy and responsibility in activity.
* **Study finalities**

**Note.** Study outcomes(are deduced from the professional competencies and formative valences of the informational content of the discipline).

* To know the anatomic and physiologic peculiarities of the development of the child’s organism;
* To know the peculiarities of diagnostic methods in pediatric surgery;
* To know the peculiarities of surgical and conservative treatment of children with surgical pathologies;
* To know the complications of surgical congenital malformations and acquired diseaases in children;
* To be able to use knowledge acquired in pediatric surgery;
* To be able to implement gained knowledge in the research activity.
1. **STUDENT'S self-training**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Expected product  | Implementation strategies | Assessment criteria | Implementation terms |
| 1. |  Working with informational sources  | Careful reading of lecture or manual chapter on certain subject. Reading of questions regarding respective theme, which need a reflection on subject. To make familiar with the list of additional informational sources on respective subject. To select the additional informational source on respective subject. Reading of the entire text and writing of the essential content. Formulation of general conclusions concerning the importance of the theme/subject. | The capacity to extract the essentials, interpretation abilities, the extent of work | During the course of pediatric surgery |
| 2. | Working with practical seminars notebook. | Before resolving tasks from notebook to analyze the information and images on the respective theme from the lecture or manual. The consecutive resolving of objectives. Formulation of conclusions at the end of each lecture. Verification of the lecture’s purposes and assessment of their achievement. Selection of the additional information using internet resources and supplementary references.  | Work extent, resolving of situational problems, the ability to make conclusions. | During the course of pediatric surgery |
| 3. | Application of different leaning techniques  | Studying in the library;Working with on-line materials;Studying of the manual material;Documentation on the specialty’s electronic platforms;Consultations;Other activities. | Work extent, the level of understanding of the essence of different subjects, the level of scientific argumentation, conclusions quality, creativity elements, demonstration of understanding the problem, formation of the personal attitude.  | During the course of pediatric surgery |
| 4. | Work with on-line sources | On-line self-evaluation, study of the on-line materials from the department website, expressing personal opinions via forums or chats.  | The number and duration of entries on the website, results of self-assessment  | During the course of pediatric surgery |
| 5. | Preparing and performing presentations | The research theme selection, setting the research plan, terms of research. Establishment of the project/ PowerPoint presentation components – theme, aim, conclusions, practical application, references. Colleagues’ reviews. Professors’ reviews.  | Work volume, the level of understanding of the essence of the project theme., level of scientific argumentation, conclusions quality, creativity elements, personal attitude formation, coherence of presentation and scientific correctness, graphic presentation, presentation modality.  | During the course of pediatric surgery |

1. **METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-assessment**

The Pediatric Surgery teaching process is using various methods oriented towards the efficient acquisition and achieving the objectives of the didactic process. In the theoretical lessons, modern methods (lesson-debate, lecture-conference, problem-based) are also used alongside the traditional methods (lesson-exposure, lesson-conversation, synthesis lesson). Practical forms of individual, frontal, group work, situation simulation, situational problems are used. In order to acquire deeper material, different semiotic systems (scientific, graphical and computerized language) and teaching materials (tables, schemes, micrographs, transparencies, algorithms, videos) are used. Communication programs and out-of-school activities use Communication Technologies - PowerPoint presentations. Practical lessons are expected:

 - At the patient's bed with examination and discussion of the subject patients, interpretation of laboratory and paraclinical investigations, diagnosis argument and differential diagnosis, indication of treatment with its argument, discussion of disease prophylaxis and vitality expertise.

 - Involvement of beneficiaries in the presentation of clinical cases with various complicated pathologies, rare diseases.

 - The practical lesson is in the form of interactive discussion, by addressing the didactic strategy centered on active and interactive learning: beneficiary-centered, multidirectional communication, with skills training, with the predominance of the formative component.

1. **TEACHING AND LEARNING METHODS USED**

At the course of Pediatric Surgery are used different didactic methods which are designed for the efficient learning and reaching of the didactic process purposes. During theoretical lessons the traditional techniques (lecture – presentation, lecture – conversation, problematized lecture) are utilized. During the practical seminars several forms of individual activity, teacher-centered and group instruction are used. With the purpose of deeper understanding of the material, different semiotic systems (scientific language, graphic and computer language) and certain didactic materials (tables, schemes, pictures) are used. Throughout the course of extracurricular lectures and activities informational technologies of communication (PowerPoint presentation, on-line lectures) are used.

* + ***Recommended teaching and learning methods***
	1. **Observation** – the identification of the characteristic elements of some biologic structures and effects, description of these elements or effects.
	2. **Analysis** – virtual decomposition of the whole into component parts. Highlighting the essential elements. Each element studying as a component part of the whole.
	3. **Scheme/figure analysis** / selection of necessary information. On the base on gained knowledge and selected information recognizing of the structures indicated in the scheme, picture. Analysis of the function/role of the recognized structures.
	4. **Comparison** – The analysis of the first process/object from one group and determination of its essential characteristics. The analysis of the second process/object and identification of its essential characteristics. Process/object comparison and determination of their common characteristics. Process/object comparison and identification of their different characteristics. Difference criteria establishment. Conclusions formulation.
	5. **Classification** – Identification of structures/processes which are intended to be classified. Determination of the criteria on the base of which the classification should be carry out. Distribution of structures/processes into groups according to the established criteria.
	6. **Scheme elaboration** – Selection of elements, which should be reflected on the scheme. Selected elements reproduction using different symbols/colors and indication of their relationships. Formulation of correct title and legend of utilized symbols.
	7. **Modeling** – Identification and selection of the necessary elements for phenomenon modeling. Imagining (graphic, schematic) of the studied phenomenon. Distribution of the respective phenomenon using elaborated material. Formulation of conclusions, deduced from arguments or observations.
	8. **Experiment** – Formulation of hypothesis, proceeding from known facts, regarding studied process/phenomenon. Hypothesis verification by process/phenomenon realization in laboratory conditions.
1. **APPLIED TEACHING STRATEGIES / TECHNOLOGIES**

 “Brainstorming”, “Multi-voting”, “Roud-table”, “Group interview”, “Case study”, “Creative controversy”, “Focus-group technique”, “Teaching portofolio”, virtual practical lessons.

1. **METHODS OF ASSESSMENT (INCLUDING THE METHOD OF FINAL MARK CALCULATION)**

**Current:** frontal and/or individual assessment by:

* application of progress tests,
* problems answering,
* case study analysis,
* role playing games on the discussed subjects,
* control tests.

***Final*** evaluation of knowledge is implemented in the form of a combined final exam which consists of: the average mark for theoretical knowledge in the assigned year of studies; the clinical skills assessment (practical exam on a real patient); oral examination and written test in the electronic monitoring system (SIMU) of the SUMF “Nicolae Testemitanu”. Students whose annual mark is lower than 5, are not admitted to the Pediatrics final examination, as well as the students who did not recover the absences on practical lessons.

Clinical skill assessment is based on real patients. Each student has 30 minutes to examine patients with different diseases and then present to the examiner the history and complete data on physical examination, make a presumptive diagnosis, set an investigation plan, makes a diagnosis and then develops a treatment plan. Practical examination is scored between 10 and 0.

A written test, approved in advance at the meeting of the Pediatric Surgery Chair and presented to students at least one month before the session, is comprised of 50 questions (for each topic from Pediatric Surgery course), of which 20 have are single choice questions and another 30 are multiple choice questions. Students have one astronomic hour to answer this test. The test is graded from 0 to 10 by scanning with a computer system “Test – corrector” developed at the State Medical and Pharmaceutical University “Nicolae Testemitanu”.

To pass the exam, students have to obtain at least a 5 at each part of the final examination. Otherwise, the exam is not validated. All exams are held in the presence of at least two people from teaching staff.

The final mark consists of the annual mark (coefficient 0.3), practical skills test (coefficient 0.2), oral exam (coefficient 0.3) and written test (coefficient 0.2). Knowledge assessment is made for each compartment separately with marks from 10 to 1 rounding up to tenth and hundredth.

The average annual mark and the marks of all stages of final examination (practical skills assessment and written test) - are expressed in numbers according to the mark scale (see the table below), and the final mark obtained is expressed in number with two decimals, which is transferred to student’s record-book.

**Method of mark rounding at different assessment stages**

|  |  |  |
| --- | --- | --- |
| Intermediate marks scale (annual average, marks from the examination stages) | National Assessment System | ECTS Equivalent |
| **1,00-3,00** | **2** | **F** |
| **3,01-4,99** | **4** | **FX** |
| **5,00**  | **5**  | **E** |
| **5,01-5,50**  | **5,5**  |
| **5,51-6,0**  | **6**  |
| **6,01-6,50**  | **6,5**  | **D** |
| **6,51-7,00**  | **7**  |
| **7,01-7,50**  | **7,5**  | **C** |
| **7,51-8,00**  | **8**  |
| **8,01-8,50**  | **8,5**  | **B** |
| **8,51-8,00**  | **9**  |
| **9,01-9,50**  | **9,5**  | **A** |
| **9,51-10,0**  | **10**  |

1. **RECOMMENDED literature:**

*A. Compulsory:*

1. Holcomb G.W., Murthy J.P., Shawn D.St.P. *Holcomb and Ashcraft’s Pediatric Surgery, Seventh edition.* Saunders, Elsevier, 2020, 1253 p.
2. [Jessica Buicko](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Dr.+Jessica+Buicko&text=Dr.+Jessica+Buicko&sort=relevancerank&search-alias=books), [Miguel Lopez-Viego](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_2?ie=UTF8&field-author=Miguel+Lopez-Viego&text=Miguel+Lopez-Viego&sort=relevancerank&search-alias=books), [Michael A. Lopez](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_3?ie=UTF8&field-author=Michael+A.+Lopez&text=Michael+A.+Lopez&sort=relevancerank&search-alias=books). *Handbook of Pediatric Surgery First Edition*, Wolters Kluwer, 2019, 624 p.

*B. Additional*

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