

**Course syllabus – part A****Elective course- Basics of ultrasound imaging of the musculoskeletal system in children****48SJ-ECBU****ECTS: 0.5****CYCLE: 2023Z****SUBJECT MATTER CONTENT****CLASSES**

I. INTRODUCTION TO THE ULTRASOUND EXAMINATION • How is an image created? What does the device consist of and how does the ultrasound device work? • X-ray, CT, MRI or ultrasound? - indications for ultrasound examination of the musculoskeletal system in children. Advantages and limitations of the method II. IMAGING AND EVALUATION OF TISSUES IN ULTRASONOGRAPHIC EXAMINATION. • Typical ultrasonographic image of a muscle, tendon, ligament or cartilage. Principles of evaluation. Anisotropy • Stretch, contusion or rupture - the most common tissue pathologies III. PRINCIPLES OF ULTRASONOGRAPHIC EXAMINATION OF THE MUSCULOSKELETAL SYSTEM OF PEDIATRIC PATIENT • When should an ultrasound examination of the musculoskeletal system should be performed or ordered in a child? • Differences in examination at developmental age • Post-traumatic and overload changes in the musculoskeletal system of a pediatric patient. • Ultrasonography as a basic tool in rheumatology and pediatric oncology. IV. ULTRASOUND ROLE IN DEVELOPMENTAL HIP DYSPLASIA OF INFANTS • What is the prevention of hip dysplasia in Poland? • Components and examination technique according to the method of prof. R. Graf • Evaluation of sonograms of a normal hip joint and a dysplastic joint. V. KNEE JOINT AS A GOOD START IN ULTRASONOGRAPHY OF THE MUSCULOSKELETAL SYSTEM. • Ultrasound anatomy of the knee joint of a healthy child • Examination technique. • The most common pathologies of the knee joint in ultrasound examination • Practical classes

**TEACHING OBJECTIVE**

Education aims to acquire knowledge and skills in basics of ultrasound imaging of the musculoskeletal system in children.

**DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:**

**Symbols for outcomes related to the discipline:**

M/NMA\_P7S\_UW++, M/NMA\_P7S\_WG+++

**Symbols for outcomes related to the field of study:**

K.2.+ , KA7\_WG1+, KA7\_WG3+, KA7\_UW5+, F.U7.+ , KA7\_UW3+, F.W10.+

**LEARNING OUTCOMES:****Knowledge:**

W1 – F.W10. knows and understands the issues of the temporarily employed imaging tests, especially: 1) radiological symptomatology of the basic diseases, 2) the instrumental

**Legal acts specifying learning outcomes:**

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**Disciplines:** medical sciences**Status of the course:****Group of courses:****Code:** ISCED 0912**Field of study:** Medicine**Scope of education:****Profile of education:** General academic**Form of studies:** full-time**Level of studies:** uniform master's studies**Year/semester:** 5/9**Year/semester:** 5/9**Types of classes:** Classes**Number of hours in semester:** Classes: 20.00**Language of instruction:** English**Introductory subject:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Prerequisites:** anatomy, physiology, diagnostic imaging, orthopedics with traumatology**Name of the organisational unit conducting the course:** Katedra Rehabilitacji i Ortopedii**Person responsible for the realization of the course:** lek.**Przemysław Jackowski****e-mail:**

methods and imaging techniques used in medical surgeries, 3) the indications, contraindications, and patient preparation for individual types of imaging tests, and contraindications against the use of contrast agents

W2 – KA7\_WG1 Knows and understands the human body, structure based on vital diagnostic examinations, in particular x-rays, ultrasound images, computed tomography and magnetic resonance imaging.

W3 – KA7\_WG3 Knows the principles of performing ultrasound examination.

**Skills:**

U1 – KA7\_UW5 It assists during an ultrasound examination visualizes selected structures, interprets the obtained images and concludes the presence of pathological changes.

U2 – KA7\_UW3 Can apply to the rules of radiological protection, concludes the presence of a pathological process based on selected imaging tests, carries out differential diagnosis

U3 – F.U7. Assess the results of radiological tests for the most frequent types of fractures, especially long bone fractures.

**Social competence:**

K1 – K.2. He is guided by the good of the patient.

**TEACHING FORMS AND METHODS:**

Classes(W1;W2;W3;U1;U2;U3;K1;):Exercises take place in the hospital ward. Conducted classes using a multimedia presentation and practical exercises with an ultrasound machine.

**FORM AND CONDITIONS OF VERIFYING LEARNING OUTCOMES:**

Classes (Part in the discussion) - Activity, presence -

**BASIC LITERATURE:**

1. Bianchi S., Martinoli C., *Ultrasound of the Musculoskeletal System*, Wyd. Springer – Verlag Berlin and Heidelberg GmbH KG, R. 2016
2. Thompson J., *Netter's Concise Orthopaedic Anatomy, Updated Edition*, Wyd. Elsevier – Health Sciences Division, R. 2016
3. Silvestri E., Muda A., Sconfienza L.M., *Normal Ultrasound Anatomy of the Musculoskeletal System: A Practical Guide*, Wyd. Springer Verlag, Springer Italia, R. 2011

**SUPPLEMENTARY LITERATURE:**

## Detailed description of ECTS credits awarded - part B

**48SJ-ECBU**

**Elective course- Basics of ultrasound imaging of the musculoskeletal system in children**

**ECTS: 22.00**

**CYCLE: 2023Z**

The number of ECTS credits awarded consists of:

1. Contact hours with the academic teacher:

- participation in: Classes	20.0 h
- consultation	2.0
Total:	22.0 h.

2. Independent work of a student:

Total: 0 h

contact hours + independent work of a student Total: 22.0 h

1 ECTS credit = 25-30 h of an average student's work, number of ECTS credit = 22.0 h : 1 h/ECTS = 22.00 ECTS on average: 0.5 ECTS

- including the number of ECTS credits for contact hours with the direct participation of an academic teacher: 0,00 ECTS points,

- including the number of ECTS credits for hours of independent work of a student: