Appendix No. 1.5 to the Rector of the University of Rzeszów Resolution No. 7/2023

SYLLABUS

Concerning the cycle of education **2024- 2030**

Academic year 2026/2027

1.BASIC INFORMATION CONCERNING THIS SUBJECT / MODULE

Subject / Module	**Diagnostic Imaging**
Course code / module *	**DO/F**
Faculty of (name of the leading direction)	**Medical College of Rzeszów University**
Department Name	**Medical College of Rzeszów University**
Field of study	**Medicine**
Level of education	**Uniform Master's Studies**
Profile	**Practical**
Form of study	**Stationary / extramural**
Year and semester	**III year, semester 4**
Type of course	**Obligatory**
Coordinator	**Assoc. Prof. Wiesław Guz, MD, PhD**
First and Last Name of the Teacher	**Assoc. Prof. Wiesław Guz, MD, PhD**

** - According to the resolutions of the Faculty of Medicine*

1.1. Forms of classes, number of hours and ECTS

Lecture	Exercise	Conversation	Laboratory	Seminar	Practical	Self-learning	**Number of points ECTS**
20	25	-	-	0	-	-	3

1.2. The form of class activities

☒classes are in the traditional form

☐classes are implemented using methods and techniques of distance learning

1.3. Examination Forms / module (**exam,** credit with grade or credit without grade)

2. REQUIREMENTS

Anatomy, physiology

3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS

3.1. Objectives of this course/module

C1	Acquainting with the physical and technical basics of classical radiology, ultrasonography, computed tomography and magnetic resonance
C2	Understanding the mechanisms of action of contrast agents, side effects and their treatment
C3	Acquisition of theoretical and practical knowledge in the field of 1. radiography: research methodology, indications, contraindications, method limits, artefacts 2. ultrasonography: test methodology, indications, contraindications, method limits, hardware requirements 3. computed tomography: test methodology, indications, contraindications, method limitations, risk of contrast agents 4. magnetic resonance: test methodology, indications, contraindications, method limitations, contrast agents
C4	Knowledge of surgical radiology techniques used for diagnostic and therapeutic purposes and biopsies under ultrasound and CT (DSA, embolization, stenting, angioplasty, percutaneous procedures on the bile ducts, fine and needle biopsy): indications, contraindications, surgical risk, research methodology

3.2. Outcomes for the course

EK (the effect of education)	The content of the learning effect defined for the subject (module)	Reference to directional effects (KEK)
EK_01	concludes about the relations between anatomical structures based on life-long diagnostic tests, in particular in the field of radiology (review photos, studies using contrast media, computed tomography and nuclear magnetic resonance)	A. U4.
EK_02	He knows the problems of contemporary image research, in particular: a) radiological symptomatology of basic diseases, b) instrumental methods and imaging techniques used for therapeutic procedures, c) indications, contraindications and preparation of patients for particular types of imaging examinations and contraindications to the use of contrast agents	F. W10.
EK_03	evaluates the result of a radiological examination in the most common types of fractures, particularly long bone fractures	F. U7.
EK_04	is aware of one's limitations and the ability to constantly learn	K.04.

3.3. Content curriculum

A. Lectures

Course contents
Physical fundamentals of diagnostic imaging methods (X-ray, CT, USG, MR, PET-CT)
Indications, contraindications and patient preparation for imaging examinations. Methodology of imaging examinations. The role of contrast agents.
Symptomatology of CNS diseases, part I (developmental disorders and injuries)
Symptomatology of CNS diseases, part II (ischemic and haemorrhagic changes)
Symptomatology of CNS diseases part III (inflammatory and degenerative changes)
Symptomatology of CNS diseases, part IV (intracranial tumors)
Symptomatology of diseases of the spine and spinal canal
Symptomatology of thoracic diseases
Symptomatology of breast diseases
Symptomatology of abdominal diseases
Symptomatology of urinary and pelvic diseases
Symptomatology of musculoskeletal disorders
Pediatric radiology
Occupational radiology

B. Exercises

Course contents
Principles of work organization in the Department of Radiology and Diagnostic Imaging. Information System of the Department of Radiology (RIS, PACS).
Ionizing and non-ionizing radiation. X-ray properties. X-ray laboratory (indications, contraindications and RTG methodology, contrast X-ray).
Laboratory of computed tomography (indications, contraindications and research methodology)
Laboratory of Magnetic Resonance (indications, contraindications and research methodology)
Diagnosis of the brain part 1 - selected examples of pathology
Diagnosis of the brain part 2 - selected examples of pathology
Diagnosis of the spine and spinal canal - selected examples of pathology
Diagnosis of the head and neck - selected examples of pathology

Chest diagnosis - selected examples of pathology
Diagnosis of the abdominal cavity - selected examples of pathology
Diagnosis of the urinary and pelvic systems - selected examples of pathology
Diagnosis of the osteoarticular system - selected examples of pathology.
Diagnosis of the vascular system - selected examples of pathology
Diagnostic imaging in paediatrics - selected examples of pathology
Diagnostic imaging within the Hospital Emergency Department

3.4.Teaching methods

Lecture: lecture with multimedia presentation

Exercises: multimedia presentation, clinical cases - discussion

Seminars: multimedia presentation, seminar, analysis of clinical problems

Student's own work: work with a book

4. METHODS AND EVALUATION CRITERIA

4.1. Methods of verification of learning outcomes

Symbol of effect	Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes)	Form of classes
EK_01, EK_02	Written exam	Lecture
EK_03, EK_04	Practical pass	Exercises

4.2. Conditions for completing the course (evaluation criteria)

Lectures: Written exam

Knowledge assessment (EK_01, EK_02):

5.0 - has knowledge of each of the contents of education at the level of 90% -100%

4.5 - has knowledge of each of the content of education at the level of 84% -89%

4.0 - has knowledge of each of the content of education at the level of 77% -83%

3.2 - has knowledge of each of the content of education at the level of 70% -76%

3.0 - has knowledge of each of the content of education at the level of 60% -69%

2.0 - has knowledge of each of the contents of education below 60%

Exercises:

Practical pass

Skill assessment (EK_03):

5.0 - the student actively participates in classes, is well prepared, knows the problems of modern imaging research very well and correctly evaluates the result of radiological examination

4.5 - the student actively participates in the classes, knows well the problems of contemporary imaging and correctly evaluates the result of the radiological examination

4.0 - the student actively participates in the classes, is improved, knows well the problems of contemporary imaging and assesses the result of the radiological examination

3.5 - the student participates in classes, his scope of preparation does not allow for a comprehensive presentation of the discussed problem, he is familiar with the problems of contemporary imaging studies and assesses the result of a radiological examination

3.0 - the student participates in the classes, knows the problems of modern imaging research, assesses the result of the radiological examination, is often corrected

2.0 - the student passively participates in the classes, the statements are incorrectly substantive, he does not know the problems of currently used imaging research sufficiently and he incorrectly assesses the result of the radiological examination

5. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE THE DESIRED RESULT IN HOURS AND ECTS CREDITS

Activity	Number of hours
Scheduled course contact hours	45
Other contact hours involving the teacher (consultation hours, examinations)	5
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	40
Total number of hours	90
Total number of ECTS credits	**3**

6. TRAINING PRACTICES IN THE SUBJECT / MODUL

Number of hours	-
Rules and forms of apprenticeship	-

7. LITERATURE

Compulsory literature:

1.WIliam Herring "Learning radiology: recognizing the basics" Philadelphia: Elsevier, 2020

Complementary literature:

1.WIliam Herring "Learning Radiology" Elsevier Books, 5th Edition - February 13, 2023

2.W.E. Brant, C.A. HELMS "Fundamentals of Diagnostic Radiology" Lippincott Williams & Wilkins 2020

3. Materials from seminars and classes provided by the subject tutors

Acceptance Unit Manager or authorized person