

**Medical faculty, University in Mostar**  
**Radiology- English studies**

**2023/2024** L = 35 S = 16 P = 49

**RADIOLOGY – PLAN AND PROGRAM**

**Head professor: Assistant professor Vedran Markotić**

**Time table: RADIOLOGY**

SUBJECT	FUNDAMENTALS OF X RAY PHYSICS	RADIOLOGY	TOTAL
lectures	5 – 44%	30 - 27,0%	35 – 35,0%
seminars	0 – 0%	16 - 14,0%	16 – 16,0%
practicals	6 – 66%	43 - 59,0%	49 – 49,0%
total:	11 – 100%	89 - 100,0%	100 – 100%

**TEACHING STAFF**

Nastavnik	Academic title	Lectures	Seminars	Practicals	Total
Associate professor Igor Borić	Associate professor	11	2	6	19
Assistant professor Vedran Markotić	Assistant professor	5	6	49	60
Assistant professor Vilma Kosović	Assistant professor	6	2	6	14
Assistant professor Krešimir Dolić	Assistant professor	13	2	6	21
dr. sc. Antonela Krasić Arapović, MD, PhD	Senior assistant		4	49	53
Dorijan Radančević, MD, radiodiagnostic specialist	Assistant			49	49

# Plan and program for the academic year 2023/2024

## LECTURES - FUNDAMENTALS OF THE X RAY PHYSICS

MARK	LECTURES	NASTAVNIK	N <sup>o</sup>
L1	X-ray tube structure, high-voltage and low-voltage generators, X-ray formation	Assistant professor Vedran Markotić	1
L2	Diagnostic X-ray devices	Assistant professor Vedran Markotić	1
L3	Special purpose X - ray devices	Assistant professor Vedran Markotić	1
L4	Newer imaging technologies	Assistant professor Vedran Markotić	2
L5	Radiation prevention and protection	Assistant professor Vedran Markotić	1

## PRACTICALS - FUNDAMENTALS OF THE X RAY PHYSICS

MARK	PRACTICALS	NASTAVNIK	N <sup>o</sup>
P I. 1.	X-ray tube structure, high-voltage and low-voltage generators, X-ray formation	Assistant professor Vedran Markotić	1
P I. 2.	Diagnostic X-ray devices	Assistant professor Vedran Markotić	1
P I. 3.	Special purpose X - ray devices	Assistant professor Vedran Markotić	1
P I. 4.	Newer imaging technologies	Assistant professor Vedran Markotić	2
P I. 5.	Radiation prevention and protection	Assistant professor Vedran Markotić	1

## LECTURES – CLINICAL RADIOLOGY - L II.

MARK	LECTURES	PROFFESOR	N <sup>o</sup>
L II. 1.	Central nervous system	Associate professor Igor Borić	3
L II. 2.	Eye, ear, nasopharynx, larynx, paranasal cavities	Associate professor Igor Borić	3
L II. 3.	Osteoarticular system and trauma of the osteoarticular system	Associate professor Igor Borić	4
L II. 4.	Thoracic organs (lungs, mediastinum)	Assistant professor Vilma Kosović	3
L II. 5.	Heart and great vessels	Assistant professor	2

		Krešimir Dolić	
<b>L II. 6.</b>	Radiological diagnosis of breast disease	Assistant professor Vilma Kosović	2
<b>L II. 7.</b>	Contrast agents in radiology	Assistant professor Krešimir Dolić	1
<b>L II. 8.</b>	Gastrointestinal and hepatobiliary system	Assistant professor Krešimir Dolić	3
<b>L II. 9.</b>	Urogenital system and adrenal glands	Assistant professor Krešimir Dolić	3
<b>L II. 10.</b>	Vascular system radiology	Assistant professor Krešimir Dolić	2
<b>L II. 11.</b>	Vessel dopler ultrasound	Assistant professor Krešimir Dolić	2
<b>L II. 12.</b>	Interventional radiology	Associate professor Igor Borić	1

### SEMINARS – CLINICAL RADIOLOGY – S II.

<b>MARK</b>	<b>SEMINARS</b>	<b>TEACHING PROFESSOR</b>	<b>GRoup</b>	<b>No</b>
<b>S II. 1.</b>	Cardiovascular system	Assistant professor Vilma Kosović		2
<b>S II. 2.</b>	Respiratory system	Assistant professor Vilma Kosović		2
<b>S II. 3.</b>	Osteoarticular system	Associate professor Igor Borić		2
<b>S II. 4.</b>	Gastrointestinal system	Assistant professor Krešimir Dolić		2
<b>S II. 5.</b>	Interventional radiology as a minimally invasive therapy: advantages over surgical methods of treatment	dr. sc. Antonela Krasić Arapović, MD, PhD		2
<b>S II. 6.</b>	Central nervous system	Assistant professor Vedran Markotić		2
<b>S II. 7.</b>	Hepatobiliary system	Assistant professor Vedran Markotić		2
<b>S II. 8.</b>	Urogenital system	Assistant professor Vedran Markotić		2

## PRACTICALS – CLINICAL RADIOLOGY – P II.

MARK	PRACTICALS	TEACHING PHYSICIAN	N <sup>0</sup>
P II. 1.	Central nervous system	dr Dorijan Radančević	5
P II. 2.	Eye, ear, nasopharynx, larynx, paranasal cavities	dr Dorijan Radančević	5
P II. 3.	Osteoarticular system and trauma of the osteoarticular system	Assistant professor Vedran Markotić	5
P II. 4.	Thoracic organs (lungs, mediastinum)	dr. sc. Antonela Krasić Arapović, MD, PhD	5
P II. 5.	Heart and great vessels	dr. sc. Antonela Krasić Arapović, MD, PhD	5
P II. 6.	Radiological diagnosis of breast disease	dr. sc. Antonela Krasić Arapović, MD, PhD	3
P II. 7.	Contrast agents in radiology	Assistant professor Vedran Markotić	3
P II. 8.	Gastrointestinal and hepatobiliary system	dr Dorijan Radančević	3
P II. 9.	Urogenital system and adrenal glands	dr Dorijan Radančević	5
P II. 10.	Vascular system radiology	Assistant professor Vedran Markotić	3

## LECTURES, FUNDAMENTALS OF THE X RAY PHYSICS FIZIKE L I.

**Monday, 4. 12. 2023.**

08,30 – 09,15	X-ray tube structure, high-voltage and low-voltage generators, X-ray formation	L I. 1.	Assistant professor Vedran Markotić
09,15 – 10,00	X-ray tube structure, high-voltage and low-voltage generators, X-ray formation	L I. 1.	Assistant professor Vedran Markotić
10,00 – 10,15	BREAK		
10,15 – 11,00	Diagnostic X-ray devices	L I. 2.	Assistant professor Vedran Markotić
11,00 – 11,45	Diagnostic X-ray devices	L I. 2.	Assistant professor Vedran Markotić
11,45 – 12,00	BREAK		
12,00 – 12,45	Special purpose X - ray devices	L I. 3.	Assistant professor Vedran Markotić
12,45-13,30	Special purpose X - ray devices	L I. 4.	Assistant professor Vedran Markotić

**Tuesday, 5.12.2023.**

08,30 – 09,15	Radiation prevention and protection	P I.	Assistant professor Vedran Markotić
09,15 – 10,00	Radiation prevention and protection	P I.	Assistant professor Vedran Markotić
10,00 – 10,15	BREAK		
10,15 – 11,00	New imaging technologies	P I.	Assistant professor Vedran Markotić
11,00 – 11,45	New imaging technologies	P I.	Assistant professor Vedran Markotić
11,45 – 12,00	BREAK		

12,00 – 12,45	New imaging technologies	<b>P I.</b>	Assistant professor Vedran Markotić
12,45 – 13,30	New imaging technologies	<b>P I.</b>	Assistant professor Vedran Markotić

### LECTURES, CLINICAL RADIOLOGY– L II.

#### Wednesday, 6.12.2023.

08,30 – 09,15	Central nervous system	<b>L II. 1.</b>	Associate professor Igor Borić
09,15 – 10,00	Central nervous system	<b>L II. 1.</b>	Associate professor Igor Borić
10,00 – 10,15	BREAK		
10,15 – 11,00	Central nervous system	<b>L II. 1.</b>	Associate professor Igor Borić
11,00 – 11,45	Central nervous system	<b>L II. 1.</b>	Associate professor Igor Borić
11,45 – 12,00	BREAK		
12,00 – 12,45	Interventional radiology	<b>L II. 2.</b>	Associate professor Igor Borić
12,45 – 13,30	Interventional radiology	<b>L II. 2.</b>	Associate professor Igor Borić
13,30-14,15	Interventional radiology	<b>L II. 2.</b>	Associate professor Igor Borić

#### Thursday, 7.12.2023.

08,30 – 09,15	Eye, ear, nasopharynx, larynx, paranasal cavities	<b>L II. 3</b>	Associate professor Igor Borić
09,15 – 10,00	Eye, ear, nasopharynx, larynx, paranasal cavities	<b>L II. 3.</b>	Associate professor Igor Borić
10,00 – 10,15	O BREAK	L	
10,15 – 11,00	Osteoarticular system and trauma of the osteoarticular system	<b>L II. 3.</b>	Associate professor Igor Borić
11,00 – 11,45	Osteoarticular system and trauma of the osteoarticular system	<b>L II. 4.</b>	Associate professor Igor Borić
11,45 – 12,00	BREAK		
12,00 – 12,45	Osteoarticular system and trauma of the osteoarticular system	<b>L II. 4.</b>	Associate professor Igor Borić
12,45-13,30	Osteoarticular system and trauma of the osteoarticular system	<b>L II. 4</b>	Associate professor Igor Borić
13,30-14,15	<b>Seminar 1</b>	<b>S 1</b>	Associate professor Igor Borić
14,15—15,00	<b>Seminar 1</b>	<b>S 1</b>	Associate professor Igor Borić

#### Friday, 8.12.2023.

08,30 – 09,15	Thoracic organs (lungs, mediastinum)	<b>L II. 5.</b>	Assistant professor Vilma Kosović
09,15 – 10,00	Thoracic organs (lungs, mediastinum)	<b>L II. 5.</b>	Assistant professor Vilma Kosović
10,00 – 10,15	BREAK		

10,15 – 11,00	Thoracic organs (lungs, mediastinum)	<b>L II. 6.</b>	Assistant professor Vilma Kosović
11,00 – 11,45	Thoracic organs (lungs, mediastinum)	<b>L II. 6.</b>	Assistant professor Vilma Kosović
11,45 – 12,00	BREAK		
12,00 – 12,45	Radiological diagnosis of breast disease	<b>L II. 7.</b>	Assistant professor Vilma Kosović
12,45 – 13,30	Radiological diagnosis of breast disease	<b>L II. 7.</b>	Assistant professor Vilma Kosović
13,30-13,45	BREAK		
13,45-14,30	<b>Seminar 2</b>	<b>S 2</b>	Assistant professor Vilma Kosović
14,30-15,15	<b>Seminar 2</b>	<b>S 2</b>	Assistant professor Vilma Kosović

**Monday, 11.12.2023.**

08,30 – 09,15	Urogenital system and adrenal glands	<b>L II. 8.</b>	Assistant professor Krešimir Dolić
09,15 – 10,00	Urogenital system and adrenal glands	<b>L II. 8.</b>	Assistant professor Krešimir Dolić
10,00 – 10,15	BREAK		
10,15 – 11,00	Urogenital system and adrenal glands	<b>L II. 8.</b>	Assistant professor Krešimir Dolić
11,00 – 11,45	Gastrointestinal and hepatobiliary system	<b>L II. 8.</b>	Assistant professor Krešimir Dolić
11,45 – 12,00	BREAK		
12,00 – 12,45	Gastrointestinal and hepatobiliary system	<b>L II. 9.</b>	Assistant professor Krešimir Dolić
12,45 – 13,30	Gastrointestinal and hepatobiliary system	<b>L II. 9.</b>	Assistant professor Krešimir Dolić
13,30 – 14,15	Gastrointestinal and hepatobiliary system	<b>L II. 9.</b>	Assistant professor Krešimir Dolić
14,15-14,30	BREAK		
14,30-15,15	<b>Seminar 3</b>	<b>S 3</b>	Assistant professor Krešimir Dolić
15,15-16,00	<b>Seminar 3</b>	<b>S 3</b>	Assistant professor Krešimir Dolić

**Tuesday, 12.12.2023.**

<b>08,30 – 09,15</b>	Contrast agents in radiology	<b>L II. 10.</b>	Assistant professor Krešimir Dolić
<b>09,15 – 10,00</b>	Contrast agents in radiology	<b>L II. 10.</b>	Assistant professor Krešimir Dolić
<b>10,00 – 10,15</b>	BREAK		
<b>10,15 – 11,00</b>	Vessel dopler ultrasound	<b>L II. 11.</b>	Assistant professor Krešimir Dolić
<b>11,00 – 11,45</b>	Vessel dopler ultrasound	<b>L II. 11.</b>	Assistant professor Krešimir Dolić
<b>11,45 – 12,00</b>	BREAK		
<b>12,00 – 12,45</b>	Heart and great vessels	<b>L II. 11.</b>	Assistant professor Krešimir Dolić
<b>12.45 – 13.30</b>	Heart and great vessels	<b>L II. 11.</b>	Assistant professor Krešimir Dolić

**Additional comments - Lectures:**

All students are required to regularly attend lectures (as prescribed by the regulations of the faculty), and records will be kept.

All students who miss some of the lectures will be required to pass the colloquium from the missing part of the material, as a prerequisite for taking the exam (all students will be notified in a timely manner, considering this subject).

All students are obliged to respect the schedule and working places, to come to the lectures properly prepared and to inform the teacher or the head of the department if there are any ambiguities.

**PRACTICALS AND SEMINARS, CLINICAL RADIOLOGY – P and S II.**  
**P (practicals) 13.12.2023. - 19.12.2023. (08,00-13,00 h)**  
**S II (seminars) 13.12. - 19.12.2023. (13,00-14,30 h).**

	V II. 1.	V II. 2.	V II. 3.	V II. 4.	V II. 5.	V II. 6.				
<b>Wednesday, Practicals 13.12. 2023. 08.00 – 13.00</b>	<b>ALL STUDENTS TO ATTEND</b>									
<b>Seminar 4 13.00 – 14,30</b>	<b>ALL STUDENTS TO ATTEND</b>									
<b>Thursday, Practicals 14.12.2023. 08.00 – 13.00</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Seminar 5 13.00 – 14,30</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Friday, Practicals 15.12. 2023. 08.00 – 13.00</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Seminar 6 13.00 – 14,30</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Monday, Practicals 18.12.2023. 08.00 – 13.00</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Seminar 7 13.00 – 14,30</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Tuesday, Practicals 19.12.2023. 08.00 – 13.00</b>					<b>ALL STUDENTS TO ATTEND</b>					
<b>Seminar 8 13.00 – 14,30</b>					<b>ALL STUDENTS TO ATTEND</b>					

**Additional comments - Practicals:**

All students are required to attend practicals (as prescribed by the rules of faculty), and records will be kept. All students who miss some of the practicals will be required to pass the colloquium from the missing part of the material, as a prerequisite for taking the exam (all students will be notified in a timely manner, considering this subject).

All students are required to attend the practicals properly dressed (white coat, appropriate clothing and footwear, mask according to current epidemic measures, pay attention to possible symptoms of respiratory infections and your body temperature), on time and in accordance with the schedule and agreement with the assistant who is in charge of practicals.



## SEMINARS, CLINICAL RADIOLOGY

**Thursday 13.12.2023. - Wednesday 19.12.2023.**

Mark	Seminar title	Proffesor	N <sup>o</sup>	Time
S 4	Cardiovascular system	dr. sc. Antonela Krasić Arapović, MD, PhD	2	13.00 – 14.30
S 5	Urogenital system	dr. sc. Antonela Krasić Arapović, MD, PhD	2	13.00 – 14.30
S 6	Neuroradiology	Assistant Dorijan Radančević	2	13.00 – 14.30
S 7	Interventional radiology	Assistant professor Vedran Markotić	2	13.00 – 14.30
S 8	Heart and great vessels	Assistant professor Vedran Markotić	2	13.00 – 14.30

1. **Seminar 1** (osteo-articular system) presenting **group 1 to Associate professor Igor Borić**, theme title: **Hip fractures (acetabulum and proximal femur) – types, classifications, X ray and i MDCT characteristics;**
2. **Seminar 2** (respiratory system) presenting **group 2 to assistant proffesor Vilma Kosović**, theme title: **CoVid 19 pneumonia (X ray and MDCT characteristics);**
3. **Seminar 3** (gastrointestinal and hepatobiliary system) **presenting group 3 to assistant proffesor Krešimir Dolić**, theme title: **The most common primary hepatic tumors (benign and malignante), secondary (metastatic) hepatic tumors;**
4. **Seminar 4** (cardiovascular system) presenting **group 4 to dr. sc. Antonela Krasić Arapović, MD, PhD**, theme title: **Pulmonary embolis, diagnostic capacities (X ray, MDCT angiography of pulmonary arteries and scintigraphy);**
5. **Seminar 5** (urogenital system) presenting **group 1 dr. sc. Antonela Krasić Arapović, MD, PhD**, theme title: **Urinary bladder tumors (most common benign and malignant – ultraosund and MDCT diagnostic characteristics);**
6. **Seminar 6** (neuroradiology) presenting **group 2 to Assistant Dorijan Radančević**, theme title: **Metastatic brain tumors (MDCT and MRI characteristics depending on primary tumor);**
7. **Seminar 7** (interventional radiology) presenting **group 3 to Assistant professor Vedran Markotić**, theme title: **EVAR i TEVAR – indications, contraindications, outcomes, postinterventional follow-up;**
8. **Seminar 8** (heart and great vessels) presenting **group 4 to Assistant professor Vedran Markotić**, theme title: **MDCT and MRI coronography – indications, protocols, most common pathology.**

### **Additional comments - Seminars:**

Students are divided into **4 (four)** seminar groups. Each group works on 2 (two) seminar topics (theme titles), jointly on searching the literature and making a presentation, and choose one representative who presents the work on the day of the seminar.

The seminars themselves are coordinated by teachers who can ask questions to the presenter and members of the seminar group (which is desirable, in order to determine the activity of the whole group), and finally give a grade for the seminar group, from 1 to 5, which will be taken into account at the exam) and enter it on the record list. Seminars are held during the week of the practicals (P II), 13:00 to 14:30 h. All students are required to attend seminars (as prescribed by the regulations of faculty), and records will be kept. All students who miss the same are required to pass the colloquium from the missing part of the material, as a prerequisite for taking the exam (all students will be notified in a timely manner, considering this subject).

When making presentations, use previously established rules (introduction, basics, pathology, radiology imaging...).

**RADIOLOGY CLASSES ARE PLANNED 4.12.2023.-19.12.2023.**

**LECTURES:** 7 working days

**SEMINARS:** 8 working days

**PRACTICALS:** 6 working days

**EXAM (I.)** will be held on the date agreed between the students and the head professor

**WINTER AND SUMMER EXAM TERMS** are organized through the mutual agreement of teachers, student representatives and the service for the organization of classes, and students will be notified in a timely manner.

**LITERATURE:**

1. William Herring, Learning Radiology; Recognizing the Basics, 4<sup>th</sup> edition, Elsevier, 2020.
2. Lecture and seminars presentation materials (it will be provided in timely manner).

**PROGRAM SCHEME: RADIOLOGY**

	Tuesday 6.12.2022.	Wednesday 7.12.2022.	Thursday 8.12.2022.	Friday 9.12.2022.	Monday 12.12.2022.
08,30 – 09,15	<b>L I. 1, 2, 3</b>	<b>L I. 4, 5</b>	<b>L II 1, 2</b>	<b>L II. 3, 4</b>	<b>L II. 5, 6, 7</b>
09,15 – 10,00					
10,00 – 10,15					
10,15 – 11,00					
11,00 – 11,45					
11,45 – 12,00					
12,00 – 12,45					
12,45 – 13,30					
14,00-15,30				<b>S</b>	<b>S</b>

	Tuesday 13.12.2022.	Wednesday 14.12.2022.
08,30 – 09,15	<b>L II. 8, 9,</b>	<b>L II. 10, 10, 11</b>
09,15 – 10,00		
10,00 – 10,15		
10,15 – 11,00		
11,00 – 11,45		
11,45 – 12,00		
12,00 – 12,45		
13,00 – 13,45		
14,00 – 15:30	<b>S</b>	

	Thursday 15.12.2022.	Friday 16.12. 2022.	Monday 19.12.2022.	Tuesday 20.12.2022.	Wednesday 21.12.2022.
08,30 – 13,00	<b>P II. 1-10</b>	<b>P II. 1-10</b>	<b>P II. 1-10</b>	<b>P II. 1-10</b>	<b>P II. 1-10</b>
13,00-14,30	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>

**Head proffesor**

**Assistant proffesor Vedran Markotić**