

## COURSE DESCRIPTION

<b>University:</b> <i>University of Presov</i>	
<b>Faculty/university workplace:</b> <i>Faculty of Health Care</i>	
<b>Code:</b> <i>6/RAT/RAPT2-ER/22</i>	<b>Course title:</b> <i>Radiological Instrumentation 2</i>
<b>Type, scope and method of educational activity:</b> Type of educational activity: <i>Lecture, Practical seminar</i> Scope of educational activity: <i>2,4 hour per week, 26,52 per semester</i> Method of educational activity: <i>Attendance</i>	
<b>Number of credits:</b> <i>6</i>	
<b>Recommended semester:</b>	
<b>Study grade:</b> <i>Bachelor</i>	
<b>Prerequisites:</b> <i>6/RAT/RAPT1-ER/22 - Radiological Instrumentation 1</i>	
<b>Conditions for passing the course:</b> <b>Form of assessment:</b>  <b>Final evaluation:</b> <i>Assessment and completion of the course: Exam</i>  <i>Full-time study contact lessons 78 hours / semester, 2 hours (lecture / week), 4 hours (seminar / week), non-contact teaching 102 hours / semester, total student workload 180 hours, full-time teaching.</i> <i>During the semester, the student implements a written test with an evaluation - 25 points (10 hours of student preparation). Student success must be at least 50%.</i> <i>A (100 - 90%)</i> <i>B (89.99 - 80%)</i> <i>C (79.99 - 70%)</i> <i>D (69.99-60%)</i> <i>E (59.99 - 50%)</i> <i>FX (49.99 and less%).</i>  <i>Oral examination of knowledge from the selected topic - 75 points (37 hours of student preparation)</i> <i>A = 100 - 90 points</i> <i>B = 89 - 80 points</i> <i>C = 79 - 70 points</i> <i>D = 69 - 60 points</i> <i>E = 59 - 50 points</i> <i>FX = less than 50 points</i>   <i>The rules of student load assessment are available at: <a href="https://www.unipo.sk/fakulta-zdravotnictva/pokyny/">https://www.unipo.sk/fakulta-zdravotnictva/pokyny/</a></i>  <b>Final rating:</b> <i>The evaluation will be given on the basis of meeting all the above requirements according to the classification scale A, B, C, D, E, FX - Study Regulations PU in Prešov <a href="https://www.unipo.sk/fakulta-zdravotnictva/vzdelavanie1/">https://www.unipo.sk/fakulta-zdravotnictva/vzdelavanie1/</a></i>	
<b>Learning outcomes:</b> <b>Learning outcomes:</b> <i>After completing the course, students can:</i> <b>Knowledge:</b> <i>VV1 - description of basic functions and use of radiological devices, operation and regular inspection,</i> <i>VV2 - fault description so that it is possible to make unambiguous orders for repairs, inspections and planning of new equipment,</i> <b>Skills:</b> <i>VV3 - apply knowledge in practice when working with radiological equipment.</i> <b>competences</b> <i>VV4 - work independently with radiological devices.</i>	
<b>Course content:</b> <b>Lectures : seminars:</b> <i>The principle of X-ray tubes , type , glow circuits , levies rotation.</i> <i>2. High-voltage circuits , types of generators.</i> <i>3. Block diagram of a conventional X-ray device block functions . Timing diagram for electric values during exposure .</i> <i>4. The primary lens ( Lysholm ), secondary lens ( Bucky ) - technical solution.</i>	

5. X-ray image intensifier and the possibility of recording (spot, video, cinema camera).
6. Automatic Exposure.
7. The TV chain.
8. radiographic, fluoroscopic complete C-arm, mobile devices, dental devices (intraoral, panoramic), mammography.
9. hard and soft imaging technique.
10. Ultrasonography.
11. Digital subtraction.
12. Digital radiography.
13. Computer tomography.
14. Magnetic resonance imaging.
15. processing and storage in Radiology - PACS.
16. Seminar analysis and practical demonstration of typical systems.
17. Consultations.

**Recommended literature :**

1. REŽNÁK I.: HUŠÁK, V., KAŠUBA J., MIŠTINA L.: Moderné zobrazovacie metódy v lekárskej diagnostike, Martin: Osveta 1992.
2. CHUDÁČEK, V.: Rádiodiagnostika, Martin: Osveta 1993.
3. KOVÁČ, A.: Abdominálna sonografia, Martin: Osveta 1995.
4. ELIÁŠ, P., ŽÍŽKA J.: Dopplerovská ultrasonografie.
5. WEIS, J., BOŘUTA, P.: Úvod do magnetickej rezonancie. GOEN Bratislava, 1998.
6. Časopisy: Praktická rádiológia, Česká rádiológia, Radiology, Diagnostic Imaging Europe.

**Language which is necessary to complete the course:**

**Notes:**

Attendance at lectures - min. 80%, participation in seminars - min. 90%.

An individualized approach is provided for students with special needs based on the recommendation of the faculty coordinator.

**Course evaluation:**

Total number of students evaluated: 0

A	B	C	D	E	FX
0%	0%	0%	0%	0%	0%

**Lecturers:**

prof. MUDr. Marie Černá, Ph.D., guarantor Bc. Ján Tarasovič, lecturer, examiner, instructor, seminary supervisor Mgr. Martina Kepeňová, Ph.D., lecturer, examiner, instructor, seminary supervisor Bc. Katarína Tokarčíková, lecturer, examiner, instructor, seminary supervisor PhDr. Bc. Janka Slaninková, Ph.D., lecturer, examiner, instructor, seminary supervisor Bc. Vladimír Remeta, lecturer, examiner, instructor, seminary supervisor doc. RNDr. Marek Chmelík, Ph.D., co-guarantor, lecturer, examiner, instructor, seminary supervisor

**Date of last change:** 01.09.2025

**Approved by:** prof. MUDr. Marie Černá, Ph.D.