**ACADEMIC DISCIPLINE OVERVIEW**

1. **Program data**

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| 1.1. Higher education institution | Grigore T. Popa University of Medicine and Pharmacy Iasi |
| 1.2. Faculty | Medical Bioengineering |
| 1.3. Department | Biomedical Sciences |
| 1.4. Field of study | Health |
| 1.5. The cycle of studies | Bachelor |
| 1.6. Study program / qualification | Balneo-physiokinetotherapy and rehabilitation – english language / Physiokinetotherapist |

**2. Discipline data**

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| 2.1. Name of the discipline / Code | | | | **Radiology and Medical Imaging** | | **RE1217** |
| 2.2. Teaching staff in charge with lectures | | | | **Lecturer Roxana Covali, MD, PhD** | | |
| 2.3. Teaching staff in charge with practical activities | | | | **Lecturer Roxana Covali, MD, PhD** | | |
| 2.4. Year of study | **II** | 2.5. Semester | **2** | 2.6. The type of assessment | **Exam, E2** | |
| 2.7. Discipline type | | **Mandatory** | | **Domain discipline** | | |

**3. Estimated total time (hours/semester of didactic activity)**

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| 3.1. Number of hours / week: | | 3.2. Courses number of hours / week | | 3.3. Seminars / practical classes  number of hours / week | | | |
| Semester 1 |  |  | |  | | | |
| Semester 2 | **3** | **2** | | **1** | | | |
| 3.4. Total number of learning hours: | **42** | 3.5. Of which: Courses | **28** | 3.6. Of which: Seminars / practical classes: | | | **14** |
| 3.7. Distribution of individual study time: | | | | | Hours sem. 1 | Hours sem. 2 | |
| Study time using course book materials, bibliography and hand notes | | | | |  | 4 | |
| Supplementary documentation in the library, using specialised platforms via internet and by field work | | | | |  | 2 | |
| Preparation time for seminars / practical classes, study themes, reviews, portfolio and essays | | | | |  | 2 | |
| Tutorship | | | | |  | 2 | |
| Examinations | | | | |  | 4 | |
| Other activities | | | | |  | - | |
| Total hours of individual study (*without examinations*) | | | | |  | **8** | |
| 3.8. Total hours per semester | | | | |  | **50** | |
| 3.9. Number of credits | | | | |  | **2** | |

**4. Preconditions (where applicable)**

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| 4.1. of curriculum | Anatomy, Physiology, Biophysics |
| 4.2. of competences | Knowledge of the communication means between basic units of living matter and the extracellular environment, and of the physical phenomena at the basis of living world |

5. **Conditions (where applicable)**

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| 5.1. for lectures | Video projecting equipment |
| 5.2. for seminars / practical classes | Radiology diagnosis equipment, negatoscope |

**6. Specific competences acquired**

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| **Professional competencies** | **C 1.2** | Formulation of hypothesis and key concepts in order to explain syndromes /diseases |
| **C 5.2** | Use of basic knowledge for choosing the appropriate means and methods to assess the cell/organ function in different pathologies  Identification of specific pathological elements on a radiographic image, Instrumentation for conventional radiology, ultrasound, CT, MRI |

7**.** **Objectives of the study discipline (according to the grid of specific competences acquired)**

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| 7.1. General objective | To make students accustomed to different imaging modalities of exploring normal or pathological body structures |
| 7.2. Specific objectives | To make students accustomed to different imaging modalities of exploring normal or pathological body structures . To make students aware of advantages and disadvantages of every imaging method and the best way to use it |

**8. Contents**

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| **8.1. Lectures** | | **Teaching methods** | **Observations** |
| 1 | Radiology and imaging of the respiratory system | Statement, questioning, noticing, interactive discussion, explanation. | 2 hours |
| 2 | Radiology and imaging of the cardiovascular system | 2 hours |
| 3 | Radiology and imaging of the spine and spinal cord: normal and pathological aspects | 2 hours |
| 4 | Radiology and imaging of the normal child’s bones: peculiarities. | 2 hours |
| 5 | Radiology and imaging of the trauma of the long bones of the upper limbs in children. | 2 hours |
| 6 | Radiology and imaging of trauma of the long bones of the lower limbs in children | 2 hours |
| 7 | Radiology and imaging of trauma of the pelvis in children | 2 hours |
| 8 | Radiology and imaging of trauma of the upper limbs in adults | 2 hours |
| 9 | Radiology and imaging of trauma of the lower limbs in adults | 2 hours |
| 10 | Radiology and imaging of trauma of the pelvis in adults | 2 hours |
| 11 | Radiology and imaging of trauma of the cranium and of the central nervous system | 2 hours |
| 12 | Radiology and imaging of diseases of the skeletal muscles | 2 hours |
| 13 | Radiology and imaging of diseases of the peripheral nerves | 2 hours |
| 14 | Radiology and imaging of diseases of the joints | 2 hours |

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| **8.2. Practical activities - practical class** | | **Teaching methods** | **Observations** |
| 1 | Radiology and imaging of the respiratory system:  1.1 Thoracic X-ray  1.2 Thoracic computed body tomography  Radiology and imaging of the cardiovascular system  1.3 Thoracic X-ray  1.4 Thoracic computed body tomography  1.5 Color Doppler ultrasound examination of the large vessels | -Radiograms owned by dr. Covali  -CT scans owned by dr. Covali  -Conventional radiology and CT textbooks  -image interpretation and interactive discussions | 2 hours |
| 2 | Radiology and imaging of the spine and spinal cord  2.1 Conventional X-rays of the spine  2.2 CT of the spine and spinal cord  2.3. MRI of the spine, intervertebral discs and spinal cord | 2 hours |
| 3 | Radiology and imaging of the normal child’s bones: peculiarities  3.1.Conventional X-rays, in frontal view and side view  3.2.CT of the bones and joints  3.3. MRI of the bones and joints | 2 hours |
| 4 | Radiology and imaging of trauma in children  4.1.Conventional X-rays, in frontal view and side view  4.2.CT of the bones and joints  4.3. MRI of the bones and joints | 2 hours |
| 5 | Radiology and imaging of trauma of the upper limbs in adults  5.1.Conventional X-rays, in frontal view and side view  5.2.CT of the bones and joints  5.3. MRI of the bones and joints | 2 hours |
| 6 | Radiology and imaging of trauma of the lower limbs in adults  6.1.Conventional X-rays, in frontal view and side view  6.2.CT of the bones and joints  6.3. MRI of the bones and joints | 2 hours |
| 7 | Radiology and imaging of trauma of the pelvis in adults  7.1.Conventional X-rays, in frontal view and side view  7.2.CT of the bones and joints  7.3. MRI of the bones and joints | 2 hours |

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| **8.3. Bibliography:** |
| ***Mandatory:*** |
| 1. Discipline lectures; 2. Patlas, M. Emergency imaging of at-risk patients. Elsevier, 2024 3. Herring, W. Learning radiology, recognizing the basis. Elsevier, 2024 4. Bogduk, N. Clinical and radiological anatomy of the lumbar spine. Elsevier, 2023 5. Davis, K., Blankenbaker, D., Bernard, S. Diagnostic imaging of musculoskeletal non-traumatic disease. Elsevier, 2023 6. Blankenbaker, D., Davis, K. Diagnostic imaging of musculoskeletal trauma. Elsevier, 2022 7. Greenspan, A., Beltran, J. Orthopaedic imaging. Lipincot Williams Wilkins, 2020. |
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| ***Elective:***  1.Covali, R. Lucrari practice de Radiologie, Editura Stef, Iasi, 2017  2.Boutin, B. Top 3 differentials in musculoskeletal imaging, Thieme, 2020. |
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**9. *Correlation of the discipline contents with the expectations of the epistemic community, professional associations, and representative employers from the afferent program field***

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| Knowledge and abilities are established as didactic objectives and specified as such in the analytic programs that are revised yearly. After their analysis by the study discipline staff, these are discussed and approved in the Curricular Committee, towards curricular harmonization among the various study disciplines. Along this entire process systematic evaluation is performed, directly if possible, regarding the correspondence of the contents to the expectations of the academic community and of the representatives of the social community, professional associations, and employers. |

**10. Evaluation**

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| Type of activity | Assessment criteria | Evaluation methods | Contribution to the final grade |
| Lectures | Acquiring theoretical notions and presented in the course | Written exam.  MCQ Examination | 80 % |
| Practical activities | Activities carried out in laboratory and conducted quality essays. | Colloquium practical activity | Admitted/ Rejected |
| Individual study | Preparation time for seminars / practical classes, study themes, reviews, portfolio and essays.  Study time using coursebook materials, bibliography and hand notes, documentation in the library, using specialised platforms via internet and by field work. | Tests during the semester | 20 % |
| Minimal performance standard:  • Recognition of the organ examined for a lesion of the osteo-articular system  • Recognition of the condition, for an injury of the osteo-articular system | | | |

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| Date | Holder of course / signature, | Holder of practical activities / signature, |
| 12.09.2024 | Lecturer Ana Roxana Covali, PhD | Lecturere Ana Roxana Covali PhD |

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| Date of approval in the Department Council/Teaching Council, | | |
| 19.09.2024 |  | Department director / signature, |
|  |  | Associate Professor Daniela-Viorelia Matei, MD, PhD |