**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 | **Rehabilitation and techniques of functional reeducation** | **RE1319** |
| 2.2. Teaching staff in charge with lectures | **Associated Professor Dan Zaharia, MD, PhD** |
| 2.3. Teaching staff in charge with practical activities | **Lecturer Cătălina Luca, PhD** |
| 2.4. Year of study | **III** | 2.5. Semester | **2** | 2.6. The type of assessment | **Exam, E2** |
| 2.7. Discipline type | **Mandatory** | **Specialty 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 | **2** | **1** | **1** |
| 3.4. Total number of learning hours: | **28** | 3.5. Of which: Courses | **14** | 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 |  | 12 |
| Supplementary documentation in the library, using specialised platforms via internet and by field work |  | 5 |
| Preparation time for seminars / practical classes, study themes, reviews, portfolio and essays |  | 5 |
| Tutorship |  | 2 |
| Examinations |  | 2 |
| Other activities |  | - |
| Total hours of individual study (*without examinations*) |  | **22** |
| 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, Physics, Biochemistry, exploration and evaluation methods in medical rehabilitation, Biomedical Instrumentation for recovery. |
| 4.2. of competences | Knowledge of the concepts, theories and fundamental concepts of physiological and pathological mechanisms of the body, symptoms and clinical signs. The ability to use biomedical instrumentation for recovery |

5. **Conditions (where applicable)**

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| 5.1. for lectures | Logistic support video |
| 5.2. for seminars / practical classes | Students will wear protective clothing (lab coat) |

**6. Specific competences acquired**

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| **Professional competencies** | **C.1.4** | The use of appropriate parameters in techniques for increasing joint mobility, muscle strength, coordination, balance, in improving some modified parameters: cardiovascularCritical interpretation of functional assessment scores and quality of life constantly updated according to international standards |
| **C4.3**  | Physical phenomena used in physiotherapy. Electrotherapy. Electrodiagnosis. Diagnosis by electrostimulation.Creating and facilitating the design of new devices  |

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

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| 7.1. General objective | Knowledge, by students in medical education opportunities, methodology and limits rehabilitative medicine, given that it can be a useful tool for rehabilitation of functional deficits and organic. |
| 7.2. Specific objectives | Acquisition of knowledge necessary for the integration of molecular-level cell, tissue, organ level, for understanding the functioning of the locomotor system and its interaction with other systems - Accumulation of notions on the different types of receptors, neurotransmitters, cytokines, to substantiate modern multiple physiological mechanisms involved in muscle contraction and their relation to skeletal elements. |

**8. Contents**

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| **8.1. Lectures** | **Teaching methods** | **Observations** |
| 1 | Defining the objectives, methodology medical rehabilitation. | Interactive lectures,Discussion, Explanations | 2 hours |
| 2 | The role of the physical therapist in the rehabilitation of functional, cognitive, occupational, social, family. | Interactive lectures,Discussion, Explanations | 2 hours |
| 3 | Rehabilitation of neuromuscular system. Techniques for rehabilitation of posture and gait. Using non-invasive monitoring techniques tone and muscle strength during locomotor recovery procedures. | Interactive lectures,Discussion, Explanations | 2 hours |
| 4 | Noninvasive techniques for rehabilitation central and peripheral nervous system. | Interactive lectures,Discussion, Explanations | 2 hours |
| 5 | Invasive techniques for rehabilitation central and peripheral nervous system. | Interactive lectures,Discussion, Explanations | 2 hours |
| 6 | Cognitive rehabilitation.  | Interactive lectures,Discussion, Explanations | 2 hours |
| 7 | Rehabilitative interventions, patient adaptation to physical dysfunction, patient quality of life.The role of multidisciplinary rehabilitation team physiotherapist. | Interactive lectures,Discussion, Explanations | 2 hours |

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| **8.2. Practical activities - practical class**  | **Teaching methods** | **Observations** |
| 1 | Definition of the concepts of recovery / rehabilitation and medical terms infirmity, disability, handicap, disability. Definition of objectives, methodology of medical rehabilitation. The stages and the medical recovery team. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |
| 2 | The role of the physiotherapist in rehabilitation. Techniques for recovery of disorders of cognitive functions (language, spatial perception, attention, memory, calculation, praxis) after neurological injuries acquired by different etiologies. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |
| 3 | Use of non-invasive techniques to monitor muscle tone and strength during recovery procedures. Electromyography in motion applied during the rehabilitation program. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |
| 4 | Using non-invasive techniques to recover muscle tone and strength. Functional electrical stimulation (FES) applied in pathologies of the lower and upper limbs. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |
| 5 | Use of non-invasive techniques to monitor peripheral nervous system, muscle tone and strength during recovery procedures. Determination of nerve conduction velocity. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |
| 6 | Functional, cognitive, professional, social, family rehabilitation. Modern devices used in the rehabilitation of walking and prehension. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |
| 7 | The role of the physiotherapist in the rehabilitation of head / spine trauma, stroke, Parkinson's disease. Balance evaluation and rehabilitation devices. | Presentation of the work, Discussion documents, Practical implementation, Conclusions | 2 hours |

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| **8.3. Bibliography:** |
| ***Mandatory:*** |
| 1. Course notes, e-Learning platform |
| 2. Practical work notes, e-Learning platform |
| 3. Zaharia D., Ciorap R. - "Monitoring of vital parameters in chronic diseases" Publisher "Gr. T. Popa" UMF Iaşi - 2010 (194 pages), ISBN-978-606-544-017-34. Sardaru D, Onu I, Matei D. Evaluarea amplitudinilor articulare, Ed Gr T. Popa, Iasi 2021.5. Hazel Clarkson. Musculoskeletal Assessment: Joint Range of Motion, Muscle Testing, and Function (Lippincott Connect) 4th Edition, ‎ Wolters Kluwer Health. July 20, 2020, ISBN ‏ : ‎ 1975152409 |
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| ***Elective:*** |
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| 1. Umphred's Neurological Rehabilitation, Rolando T. Lazaro, ISBN-13: 978-0323611176, ISBN-10: 0323611176, 7 edition (December 27, 2019)
 |

**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:* General notions regarding the rehabilitation of the central nervous system.
* Knowledge of two rehabilitation techniques and two monitoring/evaluation techniques applied during recovery procedures.
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| Date | Holder of course / signature, | Holder of practical activities / signature, |
| 11.09.2023 | Associate Professor Dan Zaharia, MD, PhD | Lecturer Cătălina Luca**,** PhD |

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| Date of approval in the Department Council/Teaching Council,  |
| 14.09.2023 |  | Department director / signature, |
|  |  | Associate Professor Daniela-Viorelia Matei, MD, PhD |