**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 | **b. Therapeutic and Assistive Devices for Rehabilitation** | **RE1323** |
| 2.2. Teaching staff in charge with lectures | **-** |
| 2.3. Teaching staff in charge with practical activities | **Lecturer Cătălina Luca, PhD** |
| 2.4. Year of study | **III** | 2.5. Semester | **1** | 2.6. The type of assessment | **Colloquium, C1** |
| 2.7. Discipline type | **Elective** | **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 | **1** |  | **1** |
| Semester 2 |  |  |  |
| 3.4. Total number of learning hours: | **14** | 3.5. Of which: Courses |  | 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 | 6 |  |
| Supplementary documentation in the library, using specialised platforms via internet and by field work | 16 |  |
| Preparation time for seminars / practical classes, study themes, reviews, portfolio and essays | 14 |  |
| Tutorship | 2 |  |
| Examinations | 2 |  |
| Other activities | - |  |
| Total hours of individual study (*without examinations*) | **36** |  |
| 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, Special techniques for persons with disabilities, Biomedical instrumentation for rehabilitation. |
| 4.2. of competences | Knowledge of the theories and fundamental concepts of physiological phenomena of the body. The ability to use biomedical instrumentation for rehabilitation. |

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 4.1** | Description of concepts, theories and basic notions for assistive devices, rehabilitation techniques, appreciation of the quality of life of patients with this devices  |
| **C 4.3** | Using the knowledge base for choosing assistive devices in different pathological situations. |

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| **Transversal****competencies** | **CT 1** | Identifying roles and responsabilities in a multidisciplinary team. Application of relationship techniques. Efficiency in teamwork and in patient relationship. Fulfillment in terms of efficiency and effectiveness for organizing tasks and activities specific to therapy interventions |

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

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| 7.1. General objective | Those providing basic knowledge and skills with which the student can use in field of assitive devices for recovery in the best conditions and maximum performance |
| 7.2. Specific objectives | Facilitate collaboration between specialist in physical therapy and assitive devices specialists to achieve results consistent with clinical observation for monitoring rehabilitation |

**8. Contents**

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| **8.2. Practical activities - seminar**  | **Teaching methods** | **Observations** |
| 1 | Computerized medical gymnastics. | Explanatory text, discussion documents, practical examples, conclusions | 2 hour |
| 2 | Robotic neurorehabilitation. Robotic lower limb recovery. Robotic recovery of the upper limbs. Robotic neuromotor recovery. | Explanatory text, discussion documents, practical examples, conclusions | 4 hour |
| 3 | **Virtual reality. Virtual environment in medical rehabilitation. Virtual reality systems used in medical rehabilitation: immersive virtual reality systems (immersive VR); simulation systems (VR simulation); projected systems (projected VR); telepresence VR systems; augmented reality systems (augmented VR); desktop virtual reality systems (desktop VR).** | Explanatory text, discussion documents, practical examples, conclusions | 4 hour |
| 4 | **Therapeutic devices for proprioceptive functional stimulation. Stimulation of neuroplasticity and motor recovery. Controlling muscle tone by reducing spasticity.** | Explanatory text, discussion documents, practical examples, conclusions | 2 hour |
| 5 | Functional and posture assessment and recovery devices. Static balance assessment - Bipodal static assessment. Recovery and training (unipodal, bipodal, difficulty levels). Protocols and standards. | Explanatory text, discussion documents, practical examples, conclusions | 2 hour |

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| **8.3. Bibliography:** |
| ***Mandatory:*** |
| 1. Practical works from e-Learning platform UMF Iasi |
| 2. WHO. ICF Browser. Assistive technology: World Health Organization;2023. Available from: <https://www.who.int/news-room/fact-sheets/detail/assistive-technology>3. World Health Organization. Rehabilitation 2030 Initiative. Available at: <https://www.who.int/initiatives/rehabilitation-2030>, accessed December 20, (2023). |
| 3. ISO. ISO 9999:2016 Assistive products for persons with disability – Classification and terminology Geneva: International Organization for Standardization; 2016. |
| 4. Assistive Devices for People with Disabilities, 2021. Available from: https://udservices.org/assistive-devices-disabilities/ |
| ***Elective:*** |
| 1. Guyton and Hall Textbook of Medical Physiology, John Hall, 13th edition, Elsevier Health Sciences, May 31; 2015.
 |
| 1. Cooper R., et all , An Introduction to Rehabilitation Engineering, Taylor and Francis; 2008.
 |
| 1. Control of Movement for the Physically Disabled: Control for Rehabilitation Technology, Dejan Popovic, Thomas Sinkjaer, Springer Science & Business Media, December 6; 2012
 |

**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 |  |
| Practical activities | Activities carried out in laboratory and conducted quality essays. | Colloquium practical activity | 80 % |
| 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:* Knowing the basic function of the assistive devices for rehabilitation
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| Date | Holder of course / signature, | Holder of practical activities / signature, |
| 11.09.2023 |  | Lecturer PhD. Cătălina Luca |

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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 |