**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 | | | | **Motor and Somato-Functional Assessment** | | **RE1202** |
| 2.2. Teaching staff in charge with lectures | | | | **Lecturer Ilie Onu, PhD** | | |
| 2.3. Teaching staff in charge with practical activities | | | | **Lecturer Ilie Onu, PhD** | | |
| 2.4. Year of study | **II** | 2.5. Semester | **1** | 2.6. The type of assessment | **Exam, E1** | |
| 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 | **2** | **1** | | **1** | | | |
| Semester 2 |  |  | |  | | | |
| 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 | | | | | 5 |  | |
| 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 | | | | | 6 |  | |
| Tutorship | | | | | 2 |  | |
| Examinations | | | | | 2 |  | |
| Other activities | | | | | 6 |  | |
| 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, Biochemistry, Biophysics, Biomechanics |
| 4.2. of competences | Knowledge of the physiological and pathological mechanisms at the level of the locomotor, cardiovascular, respiratory, nervous and internal environment systems |

5. **Conditions (where applicable)**

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| 5.1. for lectures | Video logistics support |
| 5.2. for seminars / practical classes | Students will wear protective equipment (white coats) |

**6. Specific competences acquired**

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| **Professional competencies** | **C 5.2** | Description of functional assessment scores and assessment of the quality of life of patients with disabilities. Using the basic knowledge to choose the methods of functional evaluation in different pathological situations |
| **C 5.5** | Use of general paraclinical locomotor exploration profiles. The main classes of exploration parameters: measurement by specific methods and techniques, used in the clinic.  Defining specific exploration parameters, specific exploration methods/techniques/conditions. |

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

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| 7.1. General objective | Knowledge of the techniques and methods of clinical and paraclinical exploration in physical therapy and medical recovery |
| 7.2. Specific objectives | To know the terminology specific to the evaluation methods used in practice to evaluate the structure and functions of the human body,  To know the most common methods of determining the functional capacity of the cardio-vascular, respiratory, nervous system, locomotor apparatus  To be able to apply in practice the methods of functional assessment of the most common devices and systems of the human body  Facilitating the collaboration between the physiotherapy specialist and paraclinical exploration specialists to obtain results consistent with the clinical observation necessary for clinical-therapeutic monitoring, as well as for the development of new clinical and paraclinical exploration methods. |

**8. Contents**

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| **8.1. Lectures** | | **Teaching methods** | **Observations** |
| 1 | Strength, muscle power, speed, skill, balance - evaluation methods.  Electrophysiological parameters used in the evaluation of the muscular system. Electromyography, nerve conduction studies. Functional electrical stimulation. EMG biofeedback. | Power point presentation  Interactive discussions, explanations | 2 hours |
| 2 | Functional exploration of the central nervous system. Electroencephalogram. EEG biofeedback. Radiology, computer tomography, nuclear magnetic resonance. | Power point presentation  Interactive discussions, explanations | 2 hours |
| 3 | Balance testing. Psychological and psychometric assessment. Muscle fatigue. Ergography, ergometry. | Power point presentation  Interactive discussions, explanations | 2 hours |
| 4 | Exploration of cardiac performance through non-invasive techniques (heart rate, heart rate variability, electrocardiography, central and peripheral pulse measurement). | Power point presentation  Interactive discussions, explanations | 2 hours |
| 5 | Exploration of the vascular system through non-invasive techniques (blood pressure measurement, oscillometry, ABI index). | Power point presentation  Interactive discussions, explanations | 2 hours |
| 6 | Exploration of ventilation performance through non-invasive techniques (spirometry, flow-volume curves). | Power point presentation  Interactive discussions, explanations | 2 hours |
| 7 | Use of cardiovascular reactivity techniques (exercise, clino / orthostatic tests, Valsalva maneuver, slow breathing maneuver). Evaluation of effort capacity. Ergospirometry | Power point presentation  Interactive discussions, explanations | 2 hours |

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| **8.2. Practical activities - practical class** | | **Teaching methods** | **Observations** |
| 1 | Strength, muscle power, speed - evaluation methods.  Electromyography, speed of motor and sensory conduction. Functional electrical stimulation | Practical demonstrations  Interactive discussions | 2 hours |
| 2 | EMG and EEG biofeedback. Evaluation of reaction speed, walking speed. Electroencephalogram | Practical demonstrations  Interactive discussions | 2 hours |
| 3 | Measuring and assessing coordination skills: balance testing; psychomotor tests; Ergography, ergometry. | Practical demonstrations  Interactive discussions | 2 hours |
| 4 | Exploration of cardiac performance through non-invasive techniques (heart rate, heart rate variability, electrocardiography, central and peripheral pulse measurement) | Practical demonstrations  Interactive discussions | 2 hours |
| 5 | Measurement of blood pressure (normal and pathological values). Blood pressure measurement in different types of exercise. Oscillometry. Measurement of ABI index, TBI | Practical demonstrations  Interactive discussions | 2 hours |
| 6 | Spirometry, flow-volume curve in the rehabilitation of the respiratory system | Practical demonstrations  Interactive discussions | 2 hours |
| 7 | Exercise test (cycle ergometer, treadmill). Parameters for monitoring the phases of effort (initiation, steady state, end of effort). Indications, contraindications, precautions. | Practical demonstrations  Interactive discussions | 2 hours |

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| **8.3. Bibliography:** |
| ***Mandatory:*** |
| 1. Course materials and practical works posted on the e-learning platform of UMF "Grigore T Popa" Iasi 2. Sardaru D, Onu I, Matei D. Evaluarea amplitudinilor articulare, Ed Gr T. Popa, Iasi 2021. 3. Hazel Clarkson. Musculoskeletal Assessment: Joint Range of Motion, Muscle Testing, and Function (Lippincott Connect) 4th Edition, ‎ Wolters Kluwer Health. July 20, 2020, ISBN ‏ : ‎ 1975152409 4. Popescu CD, Constantinescu A, Ignat EB, Matei D, Alexa D, Bolboceanu O, Grosu C, Popescu D. Neurology for medical students. Second edition. Eds CD Popecu. editura « Gr. T. popa », ISBN: 978-606-544-288-7, 2015 5. Fauci AS, Braunwald E, Kasper D. Harrison’s principles of Internal Medicine, pocket edition; 19Th ed. 2020 6. Ana Stratone, Florin Topoliceanu, Florin Filip, Ciofea R, Zaharia Dan, Ciorap R, Matei Daniela - Function Testing Handbook – A practical guide for foreign students, Ed PIM, 2006, ISBN 973-716-316-8; 254 pagini |
| ***Elective:*** |
| 1. Magee, David J. Orthopedic physical assessment 6th edition. Saunders, an imprint of Elsevier Inc. 2014. ISBN 978-1-4557-0977-9 2. American Association of Cardiovascular and Pulmonary Rehabilitation. Guidelines For Pulmonary 5. Rehabilitation Programs 4th Edition. Ed. Human Kinetics, 2018 |

**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.  Individual 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:   * Knowledge, understanding (principle of the method) and correct use (indications and contraindications) of an exploration technique used by the physiotherapist. | | | |

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| Date | Holder of course / signature, | Holder of practical activities / signature, |
| 10.09.2024 | Lecturer Ilie Onu, PhD | Lecturer Ilie Onu, 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 |