

## COURSE OUTLINE: CLINICAL PHYSIOTHERAPY OF MUSCULOSKELETAL SYSTEM I

### 1. GENERAL

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC INIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	<b>PHE2</b>	<b>SEMESTER</b>	<b>5th</b>
<b>COURSE TITLE</b>	<b>CLINICAL PHYSIOTHERAPY OF MUSCULOSKELETAL SYSTEM I</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
LECTURES	2	3	
CLINICAL PRACTICE	6	4	
		7	
<b>COURSE TYPE</b>	CSM <i>Compulsory Modules of General Knowledge Background (CMGKB), Compulsory Modules of Specific Knowledge Background (CMSKB), Compulsory Specialisation Modules (CSM), Optional Modules (OM)</i>		
<b>PREREQUISITE COURSES:</b>	PHYSIOTHERAPY OF THE MUSCULOSKELETAL SYSTEM I		
<b>LANGUAGE OF INSTRUCTION &amp; EXAMINATIONS:</b>	GREEK (theoretical part) GREEK or ENGLISH (clinical practice)		
<b>IS THE COURSE OFFED TO ERASMUS STUDENTS?</b>	YES (clinical practice)		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uth.gr/courses/PHYSIO_U_151/">https://eclass.uth.gr/courses/PHYSIO_U_151/</a> <a href="https://eclass.uth.gr/courses/PHYSIO_U_209/">https://eclass.uth.gr/courses/PHYSIO_U_209/</a>		

### 2. LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

#### Learning Outcomes of the Theoretical Part:

The student, upon completion of the course, will be able to:

1. Conducts a complete and detailed patient assessment, identifying key issues to make informed decisions in the patient's best interest.
2. Understands the variety of options and the complexity of clinical practice, integrating scientific evidence and personal clinical experience with the preferences of both the physiotherapist and the patient.
3. Recognizes and adapts to the differentiation of therapeutic approaches based on chronicity, severity, affected tissues (muscular, nervous, connective), individual patient characteristics, and specific treatment goals.
4. Sets realistic short-term and long-term goals.
5. Develops comprehensive clinical reasoning by understanding its significance in combination with clinical assessment.
6. Effectively utilizes information of varying levels of evidence, critically evaluating each source,

assessing the reliability of research and knowledge, and, most importantly, determining its clinical applicability.

7. Selects the appropriate therapeutic means and physiotherapy techniques for each goal and applies them correctly, understanding indications and contraindications to ensure safe use.
8. Understands the differences in assessment and physiotherapy rehabilitation of injuries, diseases, conditions, deformities, degenerations, dysfunctions, syndromes of the musculoskeletal system, and postural deviations.
9. Identifies and evaluates potentially affected tissues, assesses musculoskeletal problems in different body areas, and considers the patient's overall condition.
10. Recognizes the necessity of systematically documenting the results of ongoing assessments throughout the rehabilitation process.
11. Defines the objectives of the rehabilitation plan and is capable of proposing, organizing, and implementing the most appropriate program based on evidence-based physiotherapy methods.
12. Understands, records, and manages findings from subjective, objective, and laboratory evaluations of musculoskeletal patients in a clinical setting, developing a broad and comprehensive clinical reasoning approach.
13. Identifies the primary issues related to pathology and clinical presentation, enabling the formulation of appropriate therapeutic decisions.
14. Appreciates the variety of choices and the depth of clinical practice from different perspectives, integrating scientific evidence with the needs of both the physiotherapist and the patient.
15. Combines clinical experience with existing evidence-based knowledge to select the most effective techniques for the patient.
16. Sets realistic short-term and long-term intervention goals.
17. Selects the appropriate therapeutic means for each objective and applies them correctly, understanding indications and contraindications to ensure the safe use of physiotherapy techniques.
18. Reassesses the therapeutic intervention, recognizing areas of improvement or deterioration in the musculoskeletal patient's clinical condition, and designs and organizes a comprehensive rehabilitation program.
19. Acknowledges the role of physiotherapy in providing healthcare services across various primary healthcare structures.
20. Become familiar with the use of new technologies in delivering physiotherapy services remotely (tele-physiotherapy).

#### **Learning Outcomes of the Clinical Part:**

The student, upon completion of the course, will be able to:

1. Can take a patient's history, conduct and fully document the patient's assessment, and, most importantly, integrate and utilize this information effectively.
2. Fully understands clinical findings, applies acquired knowledge in practice, identifies and analyzes pathological movement and its impact on functionality, and is aware of the effects of immobilization on various body tissues.
3. Selects the appropriate exercise based on the therapeutic goal and the patient's progress.
4. Understands the importance of collaboration with patients, other healthcare professionals, and fellow physiotherapists and can work effectively with them.
5. Demonstrates an awareness of ethical issues in clinical practice.
6. Evaluates the effectiveness of physiotherapy sessions daily and adapts treatment accordingly.
7. Responds effectively and safely to the daily realities of clinical practice, always prioritizing patient welfare.
8. Becomes familiar with and can apply clinical assessment and rehabilitation skills.
9. Fully organizes a therapeutic intervention protocol for hospitalized patients.
10. Fully understands clinical findings and applies the knowledge and experience gained from previous coursework, correctly interpreting clinical assessment results.

11. Designs, implements, and reassesses the therapeutic intervention plan during both the acute and chronic stages of respiratory, cardiovascular, or other diseases.
12. Apply physiotherapy techniques and therapeutic methods in both hospital and community settings (detailed in specific sections).
13. Utilizes modern information and communication technology to provide physiotherapy services to patients in remote areas without access to structured healthcare facilities.
14. Understands their role in pulmonary and cardiovascular rehabilitation as a member of the interdisciplinary healthcare team.
15. Demonstrates an awareness of ethical and social issues in clinical practice.

#### **General Competences**

*Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?*

*Search for, analysis and synthesis of data and information, with the use of the necessary technology*

*Adapting to new situations*

*Decision-making*

*Working independently*

*Teamwork*

*Working in an international environment*

*Working in an interdisciplinary environment*

*Production of new research ideas*

*Project planning and management*

*Respect for difference and multiculturalism*

*Respect for the natural environment*

*Showing social, professional and ethical responsibility and sensitivity to gender issues*

*Criticism and self-criticism*

*Production of free, creative and inductive thinking*

*Others ...*

- Research, analysis, and synthesis of data and information, utilizing the necessary technologies.
- Adaptation to new situations.
- Decision-making.
- Critical thinking and self-assessment.
- Independent work.
- Teamwork.
- Work in an interdisciplinary environment.
- Clinical case planning and management.
- Demonstration of social, professional, and ethical responsibility, with sensitivity to gender-related issues.
- Respect for diversity and multiculturalism.
- Promotion of free and inductive thinking.

### **3. SYLLABUS**

#### **A. THEORETICAL PART**

##### **Unit 1: Introduction to Physiotherapy for Musculoskeletal Disorders – Evidence-Based Physiotherapy Practice**

- Definition of musculoskeletal disorders and injuries, along with fundamental rehabilitation principles.
- The role of the physiotherapist in a multidisciplinary medical and nursing therapeutic team. Management of interprofessional relationships and scientific knowledge.
- The significance of physiotherapy and the role of the physiotherapist within the healthcare team.

##### **Unit 2: Evidence-Based Physiotherapy Practice and the Clinical Patient**

- The role of documentation and research evidence in clinical practice. Integrating the physiotherapist's clinical experience with optimal external clinical evidence.
- The student learns how to transform knowledge gaps and informational needs into specific questions that can be answered.
- The student should be able to identify the best available evidence to address clinical problems

and prioritize findings through systematic literature reviews.

**Unit 3: Clinical Reasoning and Problem-Solving in Musculoskeletal Rehabilitation – Bridging Theory with Practice**

- Decision-making models, reasoning, and problem-solving strategies. The process of clinical reasoning and decision-making in musculoskeletal rehabilitation.
- Hypothesis-conclusion method based on deductive reasoning applied to clinical reality.
- Training in patient problem identification, selection of appropriate techniques and methods, and rehabilitation planning.

**Unit 4: Clinical Assessment in Physiotherapy for Musculoskeletal Injuries and Fractures**

- The role of assessment in musculoskeletal disorders. Understanding how assessment contributes to therapeutic decision-making. Evaluation as a tool for more effective patient treatment.
- Key elements of assessing orthopedic patients, including documentation and management of subjective, objective, and laboratory findings. Setting therapeutic intervention goals and managing intervention techniques.
- Interpretation of clinical assessment results and organization of rehabilitation.

**Unit 5: Osteoarthritis – Clinical Case Study**

- Clinical case analysis of osteoarthritis: knee, hip, shoulder, spine, fingers, etc.
- The role of physiotherapy and the importance of exercise. Physiotherapeutic assessment and rehabilitation.
- Collection of subjective and objective assessment data and integration of findings for decision-making. Presentation of research evidence on intervention techniques and justification of clinical choices.

**Unit 6: Lower Limb Arthroplasty (Clinical Cases)**

- Clinical case analysis from preoperative to postoperative stages in knee and hip arthroplasty. Special considerations for revision procedures in rehabilitation planning.
- The role of physiotherapy, including assessment and rehabilitation strategies.
- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices.

**Unit 7: Upper Limb Arthroplasty (Clinical Cases)**

- Clinical case analysis from preoperative to postoperative stages for shoulder and elbow arthroplasty. Special considerations for revision procedures in rehabilitation planning.
- The role of physiotherapy, including assessment and rehabilitation strategies.
- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices.

**Unit 8: Cervical and Thoracic Spine Disorders (Clinical Cases)**

- Clinical case analysis, including the role of physiotherapy, assessment, and rehabilitation strategies.
- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices. Setting rehabilitation goals based on evaluation findings.

**Unit 9: Lumbar Spine Disorders (Clinical Cases)**

- Clinical case analysis, including the role of physiotherapy, assessment, and rehabilitation strategies.
- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices. Setting rehabilitation goals based on evaluation findings.

**Unit 10: Musculoskeletal Disorders of the Shoulder and Elbow (Clinical Cases)**

- Clinical case analysis, including the role of physiotherapy, assessment, and rehabilitation

strategies.

- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices. Setting rehabilitation goals based on evaluation findings.

#### **Unit 11: Musculoskeletal Disorders of the Hand and Wrist (Clinical Cases)**

- Clinical case analysis, including the role of physiotherapy, assessment, and rehabilitation strategies.
- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices. Setting rehabilitation goals based on evaluation findings.

#### **Unit 12: Musculoskeletal Disorders of the Hip and Knee (Clinical Cases)**

- Clinical case analysis, including the role of physiotherapy, assessment, and rehabilitation strategies.
- Collection and evaluation of subjective and objective data for decision-making. Presentation of research evidence supporting intervention techniques and clinical justification of choices. Setting rehabilitation goals based on evaluation findings.

#### **Unit 13: Posture and Pathological Gait (Clinical Cases)**

- Postural assessment: Clinical assessment skills.
- Spatial and temporal characteristics of pathological gait. Control mechanisms of pathological gait, deviations, physiotherapeutic assessment, and intervention methods.
- Collection and evaluation of subjective and objective data for decision-making. Setting rehabilitation goals based on evaluation findings.

#### **Unit 14: Final Student Assessment - Examination**

- The overall performance of students is evaluated according to the course assessment methods outlined below.

### **B. CLINICAL PART**

#### **Unit 1: Introduction to Clinical Practice, Patient History, and Assessment**

- Communication with the healthcare team, the physiotherapist's contribution to the team, and patient communication.
- Patient history for orthopedic patients.
- Subjective and objective assessment of orthopedic patients. Evaluation of reduced joint mobility, overall range of motion, instability and hypermobility, increased pain, muscle weakness, neural tissue restrictions, etc., as a consequence of musculoskeletal disorders.
- Assessment of flexibility, muscle strength, endurance, range of motion - goniometry, soft tissues, neural tissue, pain, and motor behavior in joint pathologies.
- Evidence-based physiotherapy practice in clinical settings.
- Examples and applications by students.
- Student assessment.

#### **Unit 2: Clinical Reasoning and Problem-Solving in Musculoskeletal Rehabilitation**

- The ability of students to critically evaluate the outcomes of physiotherapy practices applied in clinical settings.
- Decision-making based on evidence-based physiotherapy practice.
- Examples and applications.
- Student assessment.

#### **Unit 3: Muscle Tissue and Fascia**

- Muscle tissue and fascia-related problems: thoracolumbar fascia, plantar fasciitis, Lederhose disease, De Quervain's tenosynovitis, Dupuytren's contracture.
- Compartment syndrome of the lower leg.
- Physiotherapy for clinical patients: case assessment, clinical reasoning, physiotherapy intervention techniques.

- Examples and applications.
- Student assessment.

#### **Unit 4: Neural Tissue**

- Thoracic outlet syndrome, carpal tunnel syndrome.
- Physiotherapy for clinical patients: case assessment, clinical reasoning, therapeutic intervention.
- Examples and applications.
- Student assessment.

#### **Unit 5: Connective Tissue, Tendons, Ligaments, and Bursae**

- Painful conditions related to soft tissues.
- Lateral epicondylopathy (tennis elbow), patellar tendinopathy, Achilles tendinopathy.
- Trochanteric bursitis, subacromial bursitis, pes anserine bursitis.
- Physiotherapy for clinical patients: case assessment, clinical reasoning, therapeutic intervention.
- Design of a group therapeutic exercise program.
- Examples and applications.
- Student assessment.

#### **Unit 6: Clinical Practice for Patients with Osteoarthritis**

- Comprehensive assessment of the clinical condition and laboratory findings of a patient with osteoarthritis: case evaluation, clinical reasoning, therapeutic intervention.
- Musculoskeletal system assessment, posture, gait analysis.
- Relationship between muscle speed and strength, the effect of speed and muscle length on isometric, concentric, and eccentric contraction, and their role in rehabilitation.
- Design of a group therapeutic exercise program based on patient evaluation results.
- Examples and applications.
- Application of selected therapeutic intervention techniques.
- Student assessment.

#### **Unit 7: Clinical Practice in the Orthopedic Ward – Lower Limb Arthroplasty**

- Comprehensive assessment of the clinical condition and laboratory findings of hospitalized patients after hip or knee arthroplasty: case evaluation, clinical reasoning, therapeutic intervention.
- Musculoskeletal system assessment, posture, gait, and functional ability evaluation.
- Criteria for patient mobilization or discontinuation of physiotherapy intervention.
- Student assessment.

#### **Unit 8: Clinical Practice in the Orthopedic Ward – Upper Limb Arthroplasty**

- Comprehensive assessment of the clinical condition and laboratory findings of hospitalized patients after shoulder or elbow arthroplasty: case evaluation, clinical reasoning, therapeutic intervention.
- Musculoskeletal system assessment and functional ability evaluation.
- Criteria for patient mobilization or discontinuation of physiotherapy intervention.
- Student assessment.

#### **Unit 9: Clinical Practice in the Orthopedic Ward – Spine**

- Comprehensive assessment of the clinical condition and laboratory findings of hospitalized patients after spinal surgery: case evaluation, clinical reasoning, therapeutic intervention.
- Student assessment.

#### **Unit 10: Clinical Practice in the Orthopedic Ward – Shoulder and Elbow**

- Comprehensive assessment of the clinical condition and laboratory findings of hospitalized patients after upper limb surgery: case evaluation, clinical reasoning, therapeutic intervention.
- Student assessment.

#### **Unit 11: Clinical Practice in the Orthopedic Ward – Hand and Wrist**

- Comprehensive assessment of the clinical condition and laboratory findings of hospitalized patients after hand surgery: case evaluation, clinical reasoning, therapeutic intervention.
- Student assessment.

#### **Unit 12: Clinical Practice in the Orthopedic Ward – Hip and Knee**

- Comprehensive assessment of the clinical condition and laboratory findings of hospitalized patients after lower limb surgery: case evaluation, clinical reasoning, therapeutic intervention.
- Student assessment.

**Unit 13: Standing Posture and Pathological Gait**

- Assessment and physiotherapy intervention for patients with pathological gait.
- Program design, patient education, examples, and applications.
- Student assessment.

**Unit 14: Final Student Assessment - Examination**

- The overall performance of students is evaluated according to the course assessment criteria.

**4. TEACHING and LEARNING METHODS – EVALUATION**

<p><b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i></p>	<p><b>Face-to-Face Instruction</b> The teaching methods for the <b>theoretical part</b> of the course include a variety of instructional approaches and tools, such as:</p> <ul style="list-style-type: none"> <li>• Lectures and presentations using a whiteboard, overhead projector, fixed projection system, video, and television.</li> <li>• Classroom discussions and feedback.</li> <li>• Work in small groups or individual assignments.</li> <li>• Student presentations.</li> <li>• Guest Lecturers</li> </ul> <p>The <b>clinical part</b> of the course is taught using the following methods and tools:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques used in the rehabilitation of patients with respiratory conditions within the hospital.</li> <li>• Demonstration and application of the laboratory equipment in the hospital’s physiotherapy department.</li> <li>• Clinical training of students in small groups.</li> <li>• Presentation of clinical cases by students.</li> <li>• Analysis and presentation of clinical cases.</li> <li>• Clinical application.</li> </ul>												
<p><b>USE OF INFORMATION &amp; COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<p><b>Use of ICT in Teaching, Laboratory Training, and Student Communication</b> Theoretical Part:</p> <ul style="list-style-type: none"> <li>• Utilization of Information and Communication Technologies (ICT), including the Internet, multimedia, electronic discussions via an asynchronous learning platform, and email.</li> </ul> <p>Clinical Part:</p> <ul style="list-style-type: none"> <li>• Utilization of Information and Communication Technologies (ICT), including the Internet, multimedia, electronic discussions via an asynchronous learning platform, and email.</li> </ul>												
<p><b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational</i></p>	<table border="1"> <thead> <tr> <th>Activity</th> <th>Semester workload</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>30</td> </tr> <tr> <td>Clinical Practice</td> <td>90</td> </tr> <tr> <td>Independent Study</td> <td>55</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Activity	Semester workload	Lectures	30	Clinical Practice	90	Independent Study	55				
Activity	Semester workload												
Lectures	30												
Clinical Practice	90												
Independent Study	55												

visits, project, essay writing, artistic creativity, etc.  
 The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS.

<b>Course Total</b>	<b>175</b>

**STUDENT PERFORMANCE EVALUATION**

*Description of the evaluation procedure*  
*Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*  
*Specifically defined evaluation criteria are given, and if and where they are accessible to students.*

**Student Performance Assessment**

The assessment criteria for student performance are available on the course website and are specified as follows:

**Theoretical Part:**

A final written assessment (or an oral examination in the presence of two instructors) is conducted in combination with a mid-term evaluation (progress test). The final course evaluation takes place after the end of the academic semester and covers the entire taught material. The student is required to answer questions (essay or multiple choice) that evenly cover the course's teaching units, as well as questions that require critical thinking. The final theory grade ranges from 0 to 10 and is determined by the final exam (60%) and the mid-term evaluation (40%), with a predetermined weighting factor set at the beginning of the semester.

**Clinical Part:**

Oral examinations are conducted by the instructors regarding the assignment, presentation, and implementation of physiotherapeutic interventions. There is also a daily assessment in the clinical setting through laboratory exercises and the recording of patient evaluation sheets by students.

In each session, instructors assess the student's participation and ability to effectively manage the assigned clinical case. The success or failure of the applied intervention is evaluated under the instructor's supervision. Specifically, the examination focuses on the student's ability to approach the patient, take a medical history, conduct a structured assessment, set short-term and long-term therapeutic goals, and apply appropriate physiotherapy techniques. The student must successfully complete a set of physiotherapeutic interventions covering all cardiovascular and respiratory physiotherapy techniques in each clinical setting where they are placed.

The final examinations are oral, requiring students to solve practical problems and perform necessary procedures (e.g., apply bronchial clearance techniques to a patient with a respiratory condition and improve pulmonary ventilation).

The final clinical grade is 0-10, determined by the student's daily clinical performance, with equal weighting given to the grades obtained in each individual clinical placement.

The overall student performance is evaluated by combining theoretical and clinical components of the course, using weighted coefficients that sum to 1, based on the credit units of each section. Successful completion of both theoretical and clinical components is mandatory for passing the course.

The final grade is recorded on a 10-point scale (0-10), with a



## 5. ATTACHED BIBLIOGRAPHY

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