Course Title	**Physiotherapy of Musculoskeletal Disorders I**				
Course Code	PHYS305				
Course Type	Compulsory				
Level	Bachelor (Level 1)				
Year / Semester	3^{d}/ Fall				
Instructor's Name	Christos Savva, Michail Pantouveris				
ECTS	6	**Lectures / week**	2	**Laboratories/week**	2
Course Purpose	The aim of the course is to expand the student's knowledge and clinical skills in the assessment and treatment of neuro-musculoskeletal dysfunctions of the upper extremity joints. The course incorporates the basic principles of clinical reasoning and evidence-based clinical practice, while placing particular emphasis on the development of critical thinking during the evaluation, categorization, prognosis, and treatment of complex neuro-musculoskeletal dysfunctions of the upper extremity. In addition, the aim of the course is to guide students to understand the mechanisms of induction of musculoskeletal injuries of the upper extremity, the distinction between pathology and dysfunction as well as to adjust their treatment with the aim of the functional rehabilitation of the patient and the elimination of individual symptoms.				
Learning Outcomes	Upon completion of the theoretical part of the course, students are expected to be able to: • Know the mechanisms of musculoskeletal injuries of the upper extremities and their healing stages. • Recognize and understand the influence of predisposing and aggravating factors on musculoskeletal disorders of the upper extremities. • They collect the subjective information from the patient and record it in a scientific way. • They recognize the pathology of musculoskeletal problems and correlate it with the clinical picture of the patient. • They perform a properly structured physical examination based on the history of the condition and the latest scientifically substantiated data. • They provide ergonomic and other advice to deal with predisposing and aggravating factors. • They design a comprehensive intervention program to treat the symptoms and the functional rehabilitation of the patient. • Prematurely identify risk factors for chronicity and adjust their intervention accordingly.				

	• Develop the ability to evaluate research data on musculoskeletal rehabilitation in order to deepen and renew his knowledge in this field. • Comprehend the role of digital physiotherapy approaches in the assessment and management of musculoskeletal disorders (electronic applications, smartphone application etc) • Integrate evaluation findings in their clinical reasoning based on the ICF model of musculoskeletal and movement related dysfunctions. Upon completion of the laboratory part of the course, the learner is expected to be able to: • Perform a structured clinical examination of the musculoskeletal problems of the upper extremities taking into consideration the ICF model of musculoskeletal and movement related dysfunctions (bone, muscle weakness, joint pain etc) • They recognize the pathology and distinguish it from the dysfunction of the musculoskeletal system. • They classify the problems into categories according to their clinical picture. • They recognize deviations from normal to the pattern of posture and movement in all joints of the upper extremity. • They detect the deviations from normal in the biomechanical chain of the upper extremity as well as the functional disabilities resulting from these deviations. • They choose documented means of intervention for the progressive restoration of the normal loading capacity of the tissues of the upper extremity. • Apply digital physiotherapy approaches in the assessment and management of musculoskeletal disorders (electronic applications, smartphone applications etc) • Design and execute structured functional rehabilitation programs for upper limb diseases and injuries. • They reassess the effect of their therapeutic intervention with documented means of evaluating the result and modify their intervention accordingly. • They suggest practical advice to deal with predisposing and aggravating factors.		
Prerequisites	None	Co-requisites	None
Course Content	• Advanced clinical reasoning in up-to-date neuro-musculoskeletal physiotherapy • ICF model of musculoskeletal dysfunction • Introduction to fractures – common upper extremity fractures • Introduction to tenosynopathies – common upper extremity tenosynopathies • Introduction to muscle contusions – common upper extremity muscle contusions • Introduction to osteoarthritis – common upper extremity osteoarthritis		

	• Entrapment syndromes – peripheral nervous tissue diseases in the upper extremities • Shoulder girdle dysfunctions – evaluation, differential diagnosis, rehabilitation • Elbow dysfunctions – evaluation, differential diagnosis, rehabilitation • Forearm dysfunctions – evaluation, differential diagnosis, rehabilitation • Dysfunctions-hand injury peripheral nerve injuries – evaluation, differential diagnosis, rehabilitation • Digital physiotherapy approaches in the assessment and management of musculoskeletal disorders (electronic application, smartphones applications etc)
Teaching Methodology	**Theory** The course is delivered to the students through lectures, using computer-based presentations programmes. Case Studies, Discussion, Questions / Answers are also used depending on the content of the lecture. Lecture notes and presentations are available online for use by students in combination with textbooks. Relevant material published in international scientific journals is also used to follow the latest developments related to the subject of the course. **Laboratory** During the laboratory courses, students develop their clinical skills in skill trainers and patient simulators so that they can successfully and safely apply them in a real clinical environment.
Bibliography	**Textbooks:** Stevenson, Kay, et al. "Mobilizing physiotherapy knowledge: Understanding the best evidence and barriers to implementation of hydrotherapy for musculoskeletal disease." Physiotherapy theory and practice 39.2 (2023): 343-350. Naylor, J., Killingback, C., & Green, A. (2023). What are the views of musculoskeletal physiotherapists and patients on person-centred practice? A systematic review of qualitative studies. Disability and rehabilitation, 45(6), 950-961. Petty, N., &Moore, A. (1998). Neuromusculoskeletal examination and assessment-a handbook for therapists. Churchill Livingstone Petty, N. J., & Rushton, A. (2004). Principles of joint treatment. Principles of neuromusculoskeletal treatment and management: a guide for therapists, 116-118. Hengeveld, E., Banks, K., Maitland, G. D., & Wells, P. (2005). Maitland's peripheral manipulation. Butterworth-Heinemann Schomacher, J., Grimsby, O., & Kaltenborn, F. (2014). Special Mobilization Techniques in the Musculoskeletal System, Evaluation and Treatment. Translation-Editing by Triantafyllopoulos G., Stribakos N., Billy E.

	American College of Sports Medicine. (2012). ACSM's resource manual for guidelines for exercise testing and prescription. Lippincott Williams & Wilkins. Hoogenboom, B., Voight, M., & Prentice, W. (2016). Physiotherapeutic Interventions in the Musculoskeletal System – Techniques for Therapeutic Exercises. Translated from English Triantafyllopoulos, G., Athens: Konstantaras Medical Publications. Houglum, P. A. (2018). KINESIOTHERAPY Therapeutic Exercises for Musculoskeletal Disorders. • Editors: Dimitrios G. Mandalidis, Savvas P. Mavromoustakos, Nikolaos S. Stribakos, Konstantinos A. Fousekis. Paschalidis Publications. Kisner, C., &Colby, L. A. (2021). Therapeutic exercises Basic principles and techniques. Konstantaras Publications. Norm A., Hanson B. (2000) Therapeutic exercise in water. Parisianos Publications. Athanasopoulos S. (1993) Kinesitherapy, Parisianos Publications. Amundsen, LR. (1999) Effects of age on joints and ligaments. In Kauffman, TL (ed): Geriatric Rehabilitation Manual. New York: Churchill Livingstone, pp 14–16. Lieber, RL (2010) Skeletal Muscle Structure, Function, and Plasticity: The Physiological Basis of Rehabilitation, ed. 3. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins **References** Zito, G., Jull, G., & Story, I. (2006). Clinical tests of musculoskeletal dysfunction in the diagnosis of cervicogenic headache. Manual therapy, 11(2), 118-129. Anderson, BD, and Spector, A. (2000) Introduction to Pilates-based rehabilitation. Orthop Phys Ther Clin North Am 9:395–411. Bandy, WB, and Irion, JM. (1994) The effects of time on static stretch on the flexibility of the hamstring muscles. Phys Ther 74:845–850. Bandy, W, Irion, J, and Briggler, M. (1997) The effect of time and frequency of static stretch on flexibility of the hamstring muscle. Phys Ther 77:1090–1096. Renan-Ordine, R., Alburquerque-SendÍn, F., Rodrigues De Souza, D. P., Cleland, J. A., & Fernández-De-Las-Penas, C. (2011). Effectiveness of myofascial trigger point manual therapy combined with a self-stretching protocol for the management of plantar heel pain: a randomized controlled trial. Journal of Orthopaedic & Sports Physical Therapy, 41(2), 43-50.
Assessment	**<u>Continuous Assessment (50%):</u>** The assessment may include any combination of the following:

	• **Written and/or oral**, and it consists of multiple – choice, short answer, open ended questions and/or essay questions, that align with the learning outcomes, to assess the theoretical knowledge gained. The questions ensure that students will demonstrate a deep understanding of the subject matter and apply their knowledge to solve problems or analyse scenarios. • **Assignments and projects** provide opportunities for students to apply their theoretical knowledge in practical ways. The assignments are designed in a way that require critical thinking, research, analysis, and synthesis of information. Projects can be individual, self directed learning or group-based and should align with the learning outcomes. Students are evaluated on the quality of their work, the depth of understanding displayed, and their ability to effectively communicate their ideas. Assignments and projects may be individual or group work. • Use of **case studies or problem-solving exercises** to assess how students can apply theoretical knowledge to real-life situations. Students are presented with scenarios that require analysis, critical thinking, and the application of theoretical concepts and they are assessed based on their ability to perform verbal presentations, viva voce examinations, identify and evaluate relevant information, propose solutions, and provide justifications for their choices. • **Online quizzes or interactive assessments**: Online quizzes or interactive assessments, reflective writing can be used through the Moodle platform, to create quizzes with various question formats. These assessments can be self-paced or timed, and immediate feedback can be provided to students. • **Classroom discussions and debates**: Students engage in classroom discussions and debates to assess their theoretical knowledge. Active participation is encouraged to hone their critical thinking skills by posing open-ended questions and facilitating dialogue. • **Peer and self-assessment**: Students are assigned to review and provide feedback on each other's work, encouraging them to critically evaluate their peers' understanding and provide constructive suggestions. **Laboratory** evaluation consists of assessment of the expected skills and competences, critical thinking, problem-solving and teamwork skills. During the laboratory sessions, students are closely observed as they engage in the assigned tasks and note is taken regarding the actions, approach and any relevant observations that demonstrate their understanding of the subject matter and application of skills. After assessing the laboratory work, constructive feedback is provided to students. Their strengths and areas for improvement are highlighted, linking them back to the learning outcomes to help students understand their progress and guide them towards further development. Depending on the nature of the laboratory work, peer assessment can be incorporated, where students evaluate each other's work based on the established criteria to promote self-reflection, collaboration, and a deeper understanding of the subject matter. **Final Exam (50%):** comprehensive final exam, to assess students' overall theoretical knowledge. These assessment covers a broader range of topics and

	learning outcomes from the entire program of study, to gauge the students' understanding and integration of knowledge across different areas.
Language	Greek / English