Course Title	**Advanced technology in physiotherapy**
Course Code	PHYS318
Course Type	Elective
Level	Bachelor (Level 1)
Year / Semester	3^d / Spring
Instructor's Name	Dr Georgios Koumantakis

ECTS	6	**Lectures / week**	3	**Laboratories/week**	

Course Purpose	To provide specialized knowledge and skills to students in the field of Advanced Physiotherapy Technologies, concerning the new methods of digital and robotic assessment and treatment of patients, based on the more recently available research data.
Learning Outcomes	By the end of the course, students should be able to: • Acquire knowledge that the modern physical therapist specialized in digital and robotic rehabilitation must possess • Develop skills to apply research-based methods to enhance digitization in the context of interdisciplinary rehabilitation. • Gain additional skills in the use and design of new/emerging technologies.

Prerequisites	None	Co-requisites	None

Course Content	The theoretical teaching of the module analyzes the management of various clinical cases, based on the following: • **Assessment and clinical reasoning of intervention implementation, based on the ICF model of dysfunction** • Digital interaction and guidance • Telemonitoring • Digital environments and rehabilitation and social care services and the networks they form with social agencies and other health professionals • Risks of digital exclusion and addressing these risks • Potential barriers and advantages related to the digital restoration process • Assessing the ability, needs and capabilities of customers to use different technical solutions The lectures cover the following: • Introduction to the methods and means of advanced technologies for providing physical therapy assessment and rehabilitation

	- Technical, Clinical and Ethical parameters of using advanced technologies in physical therapy - The use of Artificial Intelligence applications in Assessment and Physical Therapy Rehabilitation - Use of advanced technologies in the application of techniques and methods for the management of Spinal Cord injuries/pathologies - Use of advanced technologies in the application of techniques and methods for the management of Stroke & Brain Tumors - Use of advanced technologies in the application of Chronic Pain management techniques and methods - Use of advanced technologies in the application of techniques and methods for the management of Musculoskeletal Pathologies - Applications of advanced technologies in Mind Body Techniques (Tai Chi, Yoga, Relaxation) - Use of advanced technologies in the application of techniques and methods for the management of Pediatric Pathologies (cerebral palsy, orthopedic diseases, etc.) - Use of advanced technologies in the application of techniques and methods of management of Cardiac Surgery patients. - Use of advanced technologies in the application of techniques and methods of management of Abdominal / Thoracic Surgery patients. - Use of advanced technologies in the application of techniques and methods of management of patients with incontinence.
Teaching Methodology	The course is delivered to the students through lectures, using computer-based presentations programmes. Case Studies, Discussion, Questions / Answers on advanced physiotherapy technology techniques. 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.
Bibliography	**Textbooks:** Alexander M (2022) Telerehabilitation-Principles and Practice. 1st Ed., Elsevier, Philadelphia. Colombo R & Sanguineti V (2018) Rehabilitation Robotics – Technology and Application. 1st Ed., Academic Press-Elsevier, Cambridge, Massachusetts. **References:** Aminu, M., Phillips, E., & Kolanko, C. (2021). The Role of Digital Competence in CME Uptake: A Short Communication. Journal of European CME, 11(1), 2019436. Costa F, Janela D, Molinos M, Moulder RG, Lains J, Bento V, Scheer J, Yanamadala V, Correia FD, Cohen SP. Digital Rehabilitation for Acute Low Back Pain: A Prospective Longitudinal Cohort Study. J Pain Res. 2022 Jul 3; 15:1873-1887. doi: 10.2147/JPR.S369926. PMID: 35813029; PMCID: PMC9261956. Cramer, S. C., Dodakian, L., Le, V., See, J., Augsburger, R., McKenzie, A., Zhou, R. J., Chiu, N. L., Heckhausen, J., Cassidy, J. M., Scacchi, W., Smith, M. T., Barrett, A.

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Sibley J. B. (2022). Meeting the Future: How CME Portfolios Must Change in the Post-COVID Era. Journal of European CME, 11(1), 2058452. https://doi.org/10.1080/21614083.2022.2058452

Thornton, M., Harris, J., Breithaupt, K., Dyks, T., Finestone, H., & MacKay-Lyons, M. (2021). Development of a digital learning program for physiotherapists to enhance clinical implementation of aerobic exercise in stroke rehabilitation. Archives of physiotherapy, 11(1), 17. https://doi.org/10.1186/s40945-021-00110-5

Assessment	**Continuous Assessment (50%):**
	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. **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