Course Title	**Cardiopulmonary physiotherapy II**				
Course Code	PHYS206				
Course Type	Compulsory				
Level	Bachelor (Level 1)				
Year / Semester	2^{d}/ Fall				
Instructor's Name	Dr Julia Moissoglou Missitzi, Dr Emanuel Papadopoulos				
ECTS	6	**Lectures / week**	2	**Laboratories/week**	2
Course Purpose	The aim of the course is to introduce students to the process of identifying problems in the circulatory system, assessing the problem and choosing the appropriate means and techniques for its improvement. In particular, the aim of the course aims at the acquisition by students of the ability to observe, evaluate and interpret the findings in patients with cardiovascular dysfunctions and peripheral vessel problems, with the ultimate goal of scientifically documented physiotherapeutic intervention.				
Learning Outcomes	Upon completion of the theoretical part of the course, the student is expected to be able to: • evaluate and record cardiac disorders • observe and justify vascular disorders • recognize the pathophysiology and clinical characteristics of cardiovascular diseases • recognize the ways of evaluation and intervention of Physiotherapy in circulatory disorders, such as acute and chronic cardiovascular diseases • interpret the basics data on the electrocardiogram • recognizes the importance of exercise in the prevention and rehabilitation of cardiovascular diseases • organises a rehabilitation programme based on the findings identified during the evaluation, in a safe, reliable and scientifically acceptable manner. Upon completion of the laboratory part of the course, the student is expected to be able to: • evaluate patients with cardiovascular problems and peripheral vessel diseases • set therapeutic goals to improve the clinical picture and functionality of the cardiovascular patient				

<table>
<tr><td></td><td colspan="3">intervene physiotherapeutically in circulatory disorders such as acute and chronic cardiovascular diseases, surgeries and cases of prolonged Bedtime
Re-evaluates the therapeutic intervention recognizing the signs of progress or deterioration of the patient's clinical picture
Organizes a progressive exercise program for the prevention and rehabilitation of cardiovascular patients</td></tr>
<tr><td>Prerequisites</td><td>None</td><td>Co-requisites</td><td>None</td></tr>
<tr><td>Course Content</td><td colspan="3">Exercise and circulatory system
Evaluation of patients with cardiovascular problems and implementation of related physiotherapeutic interventions
Prescribing exercise based on the maximum cardiopulmonary stress test and the 6-minute gait test In
Prescribing exercise based on its intensity and duration for rehabilitation of patients with cardiovascular diseases such as, coronary heart disease, chronic heart failure, long Covid syndromes
Physiotherapeutic treatment of peripheral vascular diseases Electrocardiogram data
Prevention and rehabilitation of cardiovascular diseases
Physiotherapy in the intensive care unit
Cardiopulmonary resuscitation - Pediatric Resuscitation
Sports Cardiac Syndrome Clinical images SA – Bradycardia
Angiomotor Diseases - Secondary Angiomotor Lesions
AngiomotorThrombovagitis - Peripheral vascular diseases
Intermittent claudication and its treatment
Fatigue tests
Physiotherapeutic Evaluation and therapeutic intervention in: Vein Diseases, Thrombosis, Edema
With the help of audiovisual material and models, students are trained in physiotherapy management of circulatory system diseases and present work in relation to the content of the course based on observation and interpretation.
In addition, students, based on the above, become familiar with the approach and access to knowledge sources (libraries, e-libraries, internet).

Laboratory
Laboratory evaluation of patients with cardiac and cardiovascular diseases
Laboratory training in rehabilitation and exercise tests
Maximum cardiopulmonary stress test,
Submaximal exercise test,
Exercise of the patient with continuous or intermittent method</td></tr>
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	• Role of the physiotherapist in the multidisciplinary team for the rehabilitation of cardiovascular and cardiac diseases
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:** Wasserman K, Hansen JE, Sue DY, et al. Principles of exercise testing and interpretation. Philadelphia: Lea and Febiger, 1987. Dennis C. Rehabilitation of patients with coronary artery disease. In: Braunwald E, ed. Heart disease, a textbook of cardiovascular medicine, 4th ed. Philadelphia: Saunders, 1992:1382. S, N, Nanas., Cardiopulmonary stress test and cardiopulmonary rehabilitation programs, ed. Stamoulis. 2006 **References:** Nasis, I., E Kortianou, M Vasilopoulou, S Spetsioti, et al. Hemodynamic effects of high intensity interval training in COPD patients exhibiting exercise-induced dynamic hyperinflation. Respir Physiol Neurobiol, 2015, 217:8-16 Mitsiou G, Tokmakidis SP, Dinas PC, et al. Endothelial progenitor cell mobilization based on exercise volume in patients with cardiovascular disease and healthy individuals: a systematic review and meta-analysis Eur Heart J Open2022 21;2(6):oeac078. Casaburi, R., Patessio, A., Ioli, F., Zanaboni, S., Donner, C. F., Wasserman, K. (1991). Reductions in exercise lactic acidosis and ventilation as a result of exercise training in patients with obstructive lung disease. Am Rev Respir Dis 143, 9–18. Casaburi, R., Porszasz, J., Burns, M., Carithers, E., Chang, R., Cooper, C. (1997). Physiological benefits of exercise training in rehabilitation of patients with severe chronic obstructive pulmonary disease. Am J Crit Care Med, 155, 1541-1551.

	Georgiadou, O., Vogiatzis, I., Stratakos, G., Koutsoukou, A., Golemati, S., Aliverti, A., Roussos, C. and Zakynthinos, S. (2007). Effects of rehabilitation on wall volume regulation during exercise in COPD patients. Eur Respir J, 29, 284–291. ATS/ACCP statement on cardiopulmonary exercise testing. Am J Respir Care Med 2003; 167:211–77. Kortianou, E.A., Nasis, I.G., Vogiatzis, I. (2011). Exercise strategies for chronic respiratory diseases. Minerva Pneumol, 50, 111-128. Maltais, F., LeBlanc, P., Jobin, J. (1997). Intensity of training and physiological adaptation in patients with chronic obstructive pulmonary disease. Am J Respir Crit Care Med, 155, 555-561. Nasis, I., Kortianou, E.A., Clini, E., Koulouris, N.G., Vogiatzis, I. (2013). Effect of rehabilitative exercise training on peripheral muscle remodelling in patients with COPD: targeting beyond the lungs. Curr Drug Targets, 14, 262-273.
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, in order 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 assessments cover 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