

<b>Course Title</b>	<b>Kinesiology II</b>				
<b>Course Code</b>	PHYS110				
<b>Course Type</b>	Compulsory				
<b>Level</b>	Bachelor (Level 1)				
<b>Year / Semester</b>	1 <sup>st</sup> / Spring				
<b>Instructor's Name</b>	Dr Christos Savva, Dimitris Sokratous				
<b>ECTS</b>	6	<b>Lectures / week</b>	2	<b>Laboratories/week</b>	2
<b>Course Purpose</b>	<p>The purpose of the course is to provide students with the necessary knowledge and skills required for analysis of the movement of the lower extremities, pelvis and spine. In addition, the purpose of the course is to understand and familiarize them with the terminology of movements, muscle action with changes in the position of the moving joint and the action of gravity, and generally comprehensive knowledge of kinesiology of each area. Students identify normal movement and compare it with pathological, study the principles that govern them, the role played by the nervous and muscular systems. The course also prepares students to be able to assess the possible causes that lead to the appearance of pathological movement. This knowledge will lead them with greater ease to the Physiotherapy evaluation and the selection of the appropriate therapeutic exercise for each case. The comprehensive analysis of the movement, including the gait give the enabling students to assess the reduced functional capacity of the patient they undertake to treat in order to restore normal functionality.</p>				
<b>Learning Outcomes</b>	<p>Upon completion of the theoretical part of the course, the learner is expected to be able to:</p> <ul style="list-style-type: none"> <li>• recall and describe the principles of mechanics and anatomy in relation to the normal movement of the human body and in particular with regard to the spine, pelvis and lower extremities</li> <li>• to understand the principles of kinematics in relation to the osteokinematic and arthrokinematic characteristics of each joint of the spine and joints of the lower extremity</li> <li>• recalls and describe the principles of mechanics and anatomy in relation to the pathological movement of the human body and in particular with regard to the pelvis, lower limbs and gait</li> <li>• identifies the function of the joints, spine, pelvic girdle, hip, knee, ankle and foot to determine muscle function during the various movements of the spine as well as the lower extremity</li> <li>• kinesiology analyzes various functional activities as well as gait</li> </ul>				

	<ul style="list-style-type: none"> <li>to understand the behavior of peripheral neural tissue during the movements of each joint of the spine and lower extremities</li> </ul> <p>Upon completion of the laboratory part of the course the learner is expected to be able to:</p> <ul style="list-style-type: none"> <li>apply all kinds of contractions, calculate and assess the trajectory of movement of the lower extremity and spine,</li> <li>recognize the muscle work performed and name the movements of the spine and lower extremities</li> <li>describes the process of determining the type of muscle work performed</li> <li>uses selectively and evaluates the muscles of the lower extremities limb and pelvis</li> <li>analyzes kinesiological and evaluates selected functional activities of the whole body to identify the arthrokinematic characteristics of each joint of the spine and lower extremity and to recognize what happens to the peripheral nervous tissue during each movement</li> </ul>		
<b>Prerequisites</b>	None	Co-requisites	None
<b>Course Content</b>	<ul style="list-style-type: none"> <li>Principles of kinematics, osteokinematic and arthrokinematic characteristics, muscle function as well as behavior of peripheral nervous tissue. Presentation of the anatomical features of the Cervical Spine, presentation of the functional characteristics of the joints of the Cervical Spine, osteokinematic and arthrokinematic analysis of the joints that form the Cervical Spine, muscle analysis, behavior of the Peripheral Nervous Tissue during the movements of the cervical spine.</li> <li>Presentation of the anatomical features of the Thoracic Spine of the Spine and the Thoracic Lobe, presentation of the functional characteristics of the joints of the thoracic spine and the Thoracic Lobe, osteokinematic and arthrokinematic analysis of the joints that form the thoracic spine and the Thoracic Lobe, muscle analysis, behavior of the Peripheral Nervous Tissue during the movements of the thoracic spine</li> <li>Presentation of the anatomical characteristics of the lumbar spine, presentation of the functional characteristics of the joints of the lumbar spine, osteokinematic and arthrokinematic analysis of the joints that form the lumbar spine, muscle analysis, behavior of peripheral nervous tissue during the movements of the lumbar spine. Presentation of the anatomical characteristics of the Pelvic Zone, presentation of the functional characteristics of the Pelvic Zone joints, osteokinematic and arthrokinematic analysis of the joints that form the Pelvic Zone, muscle analysis, behavior of the Peripheral Nervous Tissue during the movements of the Pelvic Zone.</li> <li>Presentation of the anatomical characteristics of the Hip Joint, presentation of the functional characteristics of Hip Joint, osteokinematic and arthrokinematic analysis of Hip Joint, muscle analysis, behavior of peripheral nervous tissue during AI movements.</li> </ul>		

	<ul style="list-style-type: none"> <li>• Presentation of the anatomical characteristics of the knee, presentation of the functional characteristics of the knee, osteokinematic and arthrokinematic analysis of the knee-forming joints, muscle analysis, behavior of peripheral nervous tissue during the movements of the knee.</li> <li>• Presentation of the anatomical features of the joints of the tibia and foot, presentation of the functional characteristics of the joints of the tibia and foot, osteokinematic and arthrokinematic analysis of the joints of the tibia and foot, muscle analysis, behavior of the Peripheral Nervous Tissue during the movements of the tibia and foot.</li> </ul>
<b>Teaching Methodology</b>	<p><b>Theory</b></p> <p>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.</p> <p><b>Laboratory</b></p> <p>During the laboratory courses, students develop their clinical skills in models, where possible, and in practical application of the thematic units developed in the theoretical part of the course. They analyze simple and complex movements and activities, palpation of muscles, control of muscle functional capacity and their mode of action so that they can successfully and safely apply in a real clinical environment</p>
<b>Bibliography</b>	<p><b><u>Textbooks:</u></b></p> <p>Angin, S., &amp; Simsek, I. (Eds.). (2020). Comparative kinesiology of the human body: normal and pathological conditions. Academic Press.</p> <p>Mansfield, P. J., &amp; Neumann, D. A. (2018). Essentials of kinesiology for the physical therapist assistant e-book. Elsevier Health Sciences.</p> <p>Neumann D., Editor: Pocket I., (2018) Kinesiology of the Musculoskeletal System, Publications: Symmetry</p> <p>Cael, C. (2022). Functional anatomy: musculoskeletal anatomy, kinesiology, and palpation for manual therapists. Jones &amp; Bartlett Learning.</p> <p>Hislop, H., Avers, D., &amp; Brown, M. (2013). Daniels and Worthingham's muscle Testing-E-Book: Techniques of manual examination and performance testing. Elsevier Health Sciences.</p> <p>Gerhardt, J. J., &amp; Rondinelli, R. D. (2001). Goniometric techniques for range-of-motion assessment. Physical Medicine and Rehabilitation Clinics of North America, 12(3), 507-528.</p>

	<p>Whittle, M. W. (2014). Gait analysis: an introduction. Butterworth-Heinemann.</p> <p>Field, D., &amp; Hutchinson, J. S. O. (2006). Field's anatomy, palpation, and surface markings. Elsevier Health Sciences.</p> <p>Neumann D., Επιμέλεια: Τσέπης Η., (2018) Κινησιολογία του Μυοσκελετικού Συστήματος, Εκδόσεις : Συμμετρία</p> <p>Hamilton, N., Weimar, W., Luttgens, K., Επιμέλεια: Γιόφτσος, Γ., (2013) Κινησιολογία: Επιστημονική βάση της Ανθρώπινης κίνησης. Επιστημονικές εκδόσεις Παρισιάνου Α.Ε.</p> <p>Huglum, P., Επιμέλεια: Τσακλής Π., (2014) Brunnstrom's Κλινική Κινησιολογία, Επιστημονικές εκδόσεις Παρισιάνου Α.Ε.</p> <p>Norkin, C. C., &amp; White, D. J. (2016). Measurement of joint motion: a guide to goniometry. FA Davis.</p> <p>Comerford, M., &amp; Mottram, S. (2012). Kinetic control-e-book: The management of uncontrolled movement. Elsevier Health Sciences.</p> <p>Myers, T. Επιμέλεια: Κουμουνδούρου, Δ., Φουσέκης, Κ., (2013). Ανατομικές Αλυσίδες, Εκδόσεις: Συμμετρία</p>
<p><b>Assessment</b></p>	<p><b><u>Continuous Assessment (50%):</u></b></p> <p>The assessment may include any combination of the following:</p> <ul style="list-style-type: none"> <li>• <b>Written and/or oral</b>, 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.</li> <li>• <b>Assignments and projects</b> 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.</li> <li>• Use of <b>case studies or problem-solving exercises</b> 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</li> </ul>

	<p>presentations, viva voce examinations, identify and evaluate relevant information, propose solutions, and provide justifications for their choices.</p> <ul style="list-style-type: none"> <li>• <b>Online quizzes or interactive assessments:</b> 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.</li> <li>• <b>Classroom discussions and debates:</b> 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.</li> <li>• <b>Peer and self-assessment:</b> 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.</li> </ul> <p><b>Laboratory</b> 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.</p> <p><b>Final Exam (50%):</b> 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.</p>
<b>Language</b>	Greek / English