UNIVERSITY of NICOSIA

ECTS Syllabus

Course title	Movement Analysis in Rehabilitation				
Course code	MPTR-552				
Course type	Elective				
Level	2nd Cycle				
Year / Semester	2nd/3rd				
Teacher's name	Prof. Giannis Giakas				
ECTS	5	**Lectures / week**	2hrs	**Laboratories / week**	0hrs
Course purpose and objectives	The main objectives of the course are to: • Teach students the requirements of physiological walking and how to recognize and assess gait disorders. • Teach students how to analyze motion in two and three dimensions in a gait analysis lab. • Teach students the clinical importance of movement analysis in musculoskeletal disorders as well as the use of orthotics for the rehabilitation of the most common gait movement disorders.				
Learning outcomes	After completion of the course students are expected to be able to: 1. Analyse the normal gait cycle. 2. Assess neuro-muscular disorders of the gait cycle 3. Understand the methods of analyzing movement 4. Assess gait and movement using qualitative methods and scoring them accordingly in special scales 5. Understand the different functions of the equipment of a kinesiology lab 6. Assess gait and motion using quantitative methods. 7. Analyze quantitative and qualitative data of human gait and understand the clinical implications. 8. Gain knowledge of the basic rules of treatment with orthotics.				
Prerequisites	None	**Required**	None		
Course content	1. **Quantitative analysis of human movement**. Classification of pathological movement, physiological adaptations and treatment. 2. **Different aspects of normal gait**. Range of movement of different joints during gait. The significance of ground reaction forces. Kinematic and kinetic analysis of gait. Normal energy consumption.				

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3. Pathological gait and different adaptation strategies
4. 2-d analysis of movement and gait. Tools for measurement of movement in one plane.
5. 3-d analysis of gait. Basic principals of 3d analysis of gait for clinical purposes. Practical: analysis of gait in a normal person.
6. Practical: measurement in the kinesiology lab of the gait of a patient with cerebral palsy
7. Analysis of measurements from the practical session. Analysis of clinical implication. Analysis of EMG, video analysis and ground reaction forces.
8. Pathomechanics of movement of the upper extremity
9. Pathomechanics of movement of the lower extremity
10. Orthotics: basic biomechanics and the use in clinical practice.
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<tr><td>Teaching methodology</td><td>Class lectures, class debates, practical sessions in physio labs, case studies</td></tr>
<tr><td>Bibliography</td><td>
Required Textbooks / Readings:
<table>
<tr><th>Title</th><th>Author(s)</th><th>Publisher</th><th>Year</th><th>ISBN</th></tr>
<tr><td>The Identification and Treatment of Gait Problems in Cerebral Palsy</td><td>James R. Gage, Michael H. Schwartz, Steven E. Koop, Tom F. Novacheck</td><td>John Wiley & Sons</td><td>2009</td><td>9781898683650</td></tr>
<tr><td>Whittle's Gait Analysis, 5th Ed.</td><td>D. Levine, J. Richards, M.W. Whittle</td><td>Churchill Livingstone</td><td>2012</td><td>9780702042652</td></tr>
</table>
Recommended Textbooks / Readings:
<table>
<tr><th>Title</th><th>Author(s)</th><th>Publisher</th><th>Year</th><th>ISBN</th></tr>
<tr><td>Basic Orthopaedic Sciences: The Stanmore Guide.</td><td>Ramachandran M</td><td>Hodder Arnold</td><td>2006</td><td>9780340885024</td></tr>
<tr><td>Review of Orthopaedics</td><td>Miller MD</td><td>Elsevier</td><td>2012</td><td>9781455737383</td></tr>
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<tr><td>Assessment</td><td>Class participation, mini projects, mid-term exams, final exams.</td></tr>
<tr><td>Language</td><td>English</td></tr>
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