



**UNIVERSITY OF PELOPONNESE**  
**SCHOOL OF HEALTH SCIENCES**  
**DEPARTMENT OF PHYSIOTHERAPY**



**UNDERGRADUATE STUDIES**

**SCHOOL OF HEALTH SCIENCES  
DEPARTMENT OF PHYSIOTHERAPY**

**STUDY GUIDE**



**2022-2023**

**SPARTA**

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## UNIVERSITY OF PELOPONNESE - GENERAL INFORMATION

### Introduction

The University of Peloponnese (PAPEL) (<https://www.uop.gr/>) was established by Presidential Decree in 2000 and started operating in 2002 based in Tripoli. It is active in the 5 capitals of Peloponnese Region (Tripoli, Korinthos, Naflio, Sparti, Kalamata, Patra). It consists of 9 Schools and 22 Departments which offer undergraduate postgraduate and doctoral studies as well as learning training activities with the participation of over 20.000 1<sup>st</sup> 2<sup>nd</sup> and 3<sup>rd</sup> year students.

### Sparta

Sparta is the capital of the of Laconia. It has a population of 16.239 inhabitants. Today's Sparta is built on the eastern foothills of Taygetos, south of the center of the ancient city of the same name, near the right bank of the river Evrotas and at an altitude of 210 meters. It has large squares and tree-lined streets, neoclassical buildings and rich water supply. Its glorious past and the close distance from the legendary Mystras attract the attention of many visitors - tourists. Remains from the Temples of Orthia Artemis, Athena of Chalkio, Apollo of Carneio, as well as a theater of the Roman era are preserved from ancient Sparti. It is the financial and commercial center. The area has a long history in Antiquity, as well as in the Middle Ages and the Modern Age.

Some of the many sights of Sparta are: "The Ancient Acropolis", "The tomb of Leonidas", "The Sanctuary of Orthia Artemis", "the Temple of Menelaus". In the center of the modern city the visitor is impressed by the square, which dominates the most imposing neoclassical of Sparti, the City Hall and the Neoclassical buildings such as the Archaeological Museum, the building of the Old Courthouse, the Valasaki House that houses the Commando Gallery, the house of Liouni, the house of Fikiori, the house of Kyriazopoulou etc. On Lykourgou Street, in an elevated position next to the Courthouse, is the imposing Metropolitan Church of Evangelistria. The church, inaugurated in 1893 and built according to the neoclassical standards of the Diocese of Athens, has next to it the homonymous park. In the same area is the Public Central Library of Sparti which is the body responsible for the collection, recording, preservation, utilization and promotion of the archive of Nikiforos Vrettakos. There is also the remarkable Modern Museum of Olive and Greek Oil that was created in December 2002 by the Cultural Technological Institute of ETVA and is housed in the old stone two-storey building of the Electric Company of Sparti. The patron saint of the city

is Saint Nikon, where his memory is celebrated on November 26 with special splendor in the city. K. Palaiologos Avenue with the palm trees planted in 1930 is the most characteristic street of Sparta. Finally, the "Spartathlon" is now the top over-distance race in the world, on the one hand due to its historical background, on the other hand due to the unprecedented roughness of the route, which passes through impassable paths and mountains, testing human endurance at marginal levels while cycling "Spartakiada" started in 1988 which takes place every year at the end of September.

## **INSTITUTIONAL FRAMEWORK**

### **Mission of the University**

The mission of the University of Peloponnese is to enhance scientific research and the production of new knowledge. It also upgrades the educational process and curricula, providing support services to students and graduates. The University develops extroversion by supporting development initiatives at regional, national and international level. The connection of the University with the local community contributes substantially to the social cohesion, supporting all socially sensitive groups. In addition, it creates a culture of fruitful dialogue and respect for diversity throughout the academic community. The University aims to improve its academic and research activities at organizing all cycles of studies (undergraduate, post-graduate and doctoral programmes of studies) and at co-existing with other Universities for development, extroversion, and inter-disciplinary co-operations.

### **Organizing studies**

The academic year begins on September 1 of each year and ends on August 31 of the following year. The educational project of each academic year is structured in 2 semesters: winter and spring. The exact dates of the beginning of the winter and spring semesters are determined by the Senate of the University. Each semester includes at least 13 full weeks of instruction and 3 weeks of exams. The content of the courses includes every type of teaching work performed. The content is explained on the first day of teaching the course and the way of evaluating the students' performance is announced as well as its basic bibliography. The teaching project includes: (a) the independent teaching of the course (b) the laboratory exercises (c) the clinical exercises and (d) the supervision of diploma thesis, seminars or other activities aimed at consolidating the students' knowledge. Teaching is supplemented with educational textbooks,

which are provided to students free of charge and with the additional information and access of students to the relevant Greek and foreign literature.

### **Graduation ceremony**

The award of the Degree of Physiotherapy takes place in a special ceremony that will be organized in the Great Amphitheater of the University attended by the President of the Department, the members of the Research Teaching Staff and the public.

### **ADMINISTRATION OF UNIVERSITY**

Rector: Prof. Athanasios Katsis

Vice Rector for Academic and Student Affairs: Pr.: Konstantinos Mavreas

Vice Rector for Finance and Electronic Governance: Pr.: Eustratios Tzirtzilakis

Vice Rector for Administrative Affairs, International Relations and Extroversion: Pr.:  
Efthalia Hatzigianni



## **DEPARTMENT OF PHYSIOTHERAPY - GENERAL INFORMATION**

### **Introduction**

The Department of Physiotherapy of the University of Peloponnese was created by Law 4610/2019 (70 / AD / 07.05. 2019) and belongs to the School of Health Sciences (SEY) of the University of Peloponnese. It is the fifth University Department of Physiotherapy in Greece and is one of the three Departments of the University of Peloponnese based in Sparta.

### **Information-Contact**

The Department of Physiotherapy is located in the address “Eust. & Stamat. Valiotti & Plataion” Sparta, 23100. The site is <https://www.uop.gr/component/spsimpleportfolio/item/25-tmima-fysikotherapeias> The email address is [pthgram@uop.gr](mailto:pthgram@uop.gr) Secretary's contact numbers are 27310 89689 & 89684.

### **Administration of Physiotherapy Department**

*Head: Professor Maria Tsironi*

Contact details: Nursing Department Building Economical Studies Department, 2<sup>nd</sup> floor, Sechi, Tripoli 22100

Email [tsironi@uop.gr](mailto:tsironi@uop.gr)

CV [http://nosileftiki.uop.gr/files/CV\\_tsironi\\_gr.pdf](http://nosileftiki.uop.gr/files/CV_tsironi_gr.pdf)

*Vice Head: Associate Professor Aikaterini Kastanioti*

Contact details: Department of Business Administration and Organizations. School of Management, University of Peloponnese, Antikalamos, 241 00 Kalamata

Email [a.kastanioti@uop.gr](mailto:a.kastanioti@uop.gr)

CV <http://boa.uop.gr/index.php/el/h16>

### **Secretariat**

The administrative services (ground Building) is open for the public every day at 09.00-12.00pm.

Head of Secretary Services: Georgia Lappa

Contact number: 27310 89689/89651

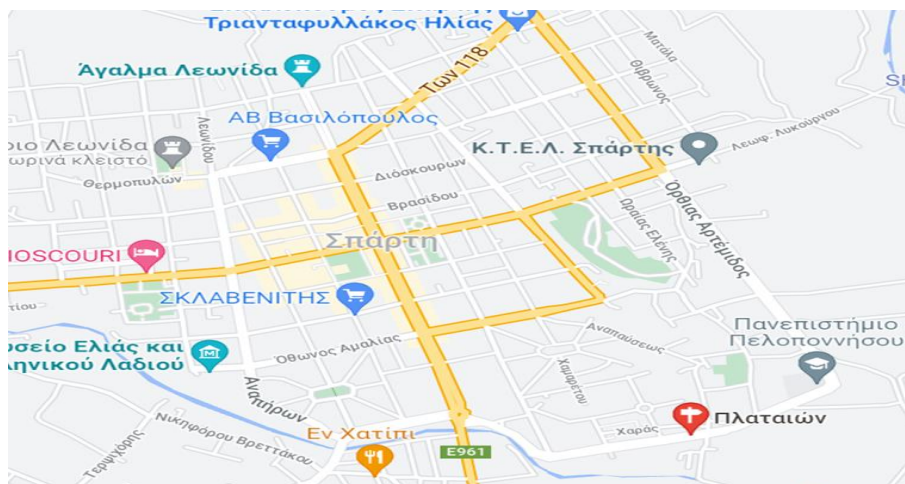
Fax: 2731089684.

Email: [pthgram@uop.gr](mailto:pthgram@uop.gr)

Site: <http://physiotherapy.uop.gr>

### Instructions “How to get to the Department of Physiotherapy”

The Department of Physiotherapy is located in the Building of the University of Peloponnese in Sparta and is co-located with the Department of Sports Organization and Management in the address “Eust. & Stamat. Valiotti & Plataion” Sparta, 23100.



### Indicative references to other physiotherapy guides in Greece and abroad

- Study Guide Department of Physiotherapy University of West Attica  
[http://www.phys.uniwa.gr/wp-content/uploads/sites/19/2021/12/ΟΔΗΓΟΣ-ΣΠΟΥΔΩΝ-Τμήματος-ΦΥΣΙΚΟΘΕΡΑΠΕΙΑΣ-2021\\_2022.pdf](http://www.phys.uniwa.gr/wp-content/uploads/sites/19/2021/12/ΟΔΗΓΟΣ-ΣΠΟΥΔΩΝ-Τμήματος-ΦΥΣΙΚΟΘΕΡΑΠΕΙΑΣ-2021_2022.pdf)
- Study Guide Department of Physiotherapy University of Thessaly  
<http://physio.uth.gr/wp-content/uploads/2019/09/Αναλυτικός-Οδηγός-Σπουδών-Προπτυχιακού.pdf>
- Study Guide Department of Physiotherapy University of Patra  
[http://physio.upatras.gr/physiofiles/Τελικός\\_οδηγός\\_σπουδών.pdf](http://physio.upatras.gr/physiofiles/Τελικός_οδηγός_σπουδών.pdf)  
[http://physio.upatras.gr/physiofiles/ΠΠΣ\\_ΦΥΣΙΚΟΘΕΡΑΠΕΙΑ\\_2019.pdf](http://physio.upatras.gr/physiofiles/ΠΠΣ_ΦΥΣΙΚΟΘΕΡΑΠΕΙΑ_2019.pdf)
- Study Guide Department of Physiotherapy International University of Thessaloniki  
<https://www.ihu.gr/wp-content/uploads/2019/07/prog-spoudon-fysikotherapia.pdf>
- St George's University of London Physiotherapy  
<https://www.sgul.ac.uk/study/courses/physiotherapy#modules>
- University of Southampton Department of Physiotherapy  
<https://www.southampton.ac.uk/courses/physiotherapy-degree-bsc#main>
- The University of Notre Dame Australia’s School of Physiotherapy

<https://www.notredame.edu.au/programs/fremantle/school-of-physiotherapy/undergraduate/bachelor-of-physiotherapy>

- AUT University New Zealand Bachelor of Health Science- Physiotherapy  
[https://www.aut.ac.nz/\\_data/assets/pdf\\_file/0006/347910/2021-Health-Sciences-Programme-Guide.pdf](https://www.aut.ac.nz/_data/assets/pdf_file/0006/347910/2021-Health-Sciences-Programme-Guide.pdf)
- EMORY University School of Medicine USA Division of Physical therapy  
<https://www.emorydpt.org/explore-programs/>

## ACADEMIC STAFF

The academic staff of the Physiotherapy Department is divided in Academic Research Staff (DEP) and Special Laboratory Research Staff (EEDIP). <http://physiotherapy.uop.gr/meli-dep/>  
<http://physiotherapy.uop.gr/dioikitiko-prosopiko/>

The academic Research staff is comprised of 7 members:

Panagiotis Grilias [p.gkrilias@uop.gr](mailto:p.gkrilias@uop.gr)  
 Maria Kyriakidou [mariakyriakidou15@gmail.com](mailto:mariakyriakidou15@gmail.com)  
 Antonia Marazioti [a.marazioti@uop.gr](mailto:a.marazioti@uop.gr)  
 Giorgos Papagiannis [g.papagiannis@uop.gr](mailto:g.papagiannis@uop.gr)  
 Anna Christakou [a.christakou@uop.gr](mailto:a.christakou@uop.gr)  
 Dimitrios Chytas [dimitrioschytas@gmail.com](mailto:dimitrioschytas@gmail.com)  
 Epameinondas Lyros [lyrosep@yahoo.gr](mailto:lyrosep@yahoo.gr)

The special Laboratory Academic Staff is comprised of one member:

Stavros Kontos [sgkontos@go.uop.gr](mailto:sgkontos@go.uop.gr)

## **UNDERGRADUATE PROGRAM OF STUDIES**

### **Introduction - General Information**

The mission of the Department of Physiotherapy is the promotion, development and transfer of knowledge in Physiotherapy Science, with appropriate theoretical teaching, extensive laboratory, clinical and practical training and applied research, to provide students with the necessary supplies to ensure the best their training for their scientific and professional career and development. Moreover, the promotion of the Physiotherapy Science is illustrated via the dissemination of continuous research activity of the academic community and their extroversion. The department's extroversion is accomplished 1) via the development of collaborations with public and private bodies of local and global scientific and research field as well as the Erasmus, and 2) the social contribution and induction of graduates in the labor market in Greece and globally.

### **Known object**

The program of studies of the Department of Physiotherapy is in line with the European countries' program of studies and the guidelines of the World Confederation for Physical Therapy – WCPT. According to WCPT, Physiotherapists provide services that develop, maintain and restore people's maximum movement and functional ability. They can help people at any stage of life, when movement and function are threatened by ageing, injury, diseases, disorders, conditions or environmental factors (<http://www.wp.org/>). Physiotherapy Profession, via WCPT belongs to World Health Professions Alliance (WHPA), participates as an autonomous health professional, as physicians, dentists, pharmacists, nurses (<http://www.wcpt.org/collaborations-activities>). Physiotherapy education in Greece is now provided only by the University with a specific mission and content of studies, as the subject of "Physiotherapy Science" has been sufficiently defined. The content of studies of the Department of Physiotherapy covers the subject of the Physiotherapy Science to prevent, improve and restore pathological conditions, congenital and acquired, as well as traumatic injuries that cause disorders of the musculoskeletal nervous and cardiovascular systems.

### **Awarded title**

The awarded undergraduate degree of the Department of Physiotherapy is at Bachelor level 6 according to the National Qualifications Framework (EPP) and the European Qualifications Framework(EQF)

[http://www.eoppep.gr/images/European/ETHNIKO\\_PLAISIO\\_PROSONTON\\_NOVEMBER\\_2016.pdf](http://www.eoppep.gr/images/European/ETHNIKO_PLAISIO_PROSONTON_NOVEMBER_2016.pdf)

### **Entrance requirements**

The entrance to Physiotherapy Department is accomplished through the Panhellenic Exams (GCSE grades) after the acquisition from High School or Technical High School according to the current legislation. Graduates from other departments of higher (tertiary) education can enter the Physiotherapy Department with the procedure of graduate admission (fast-track) examinations. Enrollments of university freshmen students are performed during the timeline that current relevant ministerial decisions define.

### **Requirements of Degree Acquisition**

The duration of studies in the Department of Physiotherapy is eight (8) semesters. During these 8 semesters, studies comprise of theoretical, laboratory, clinical education, thesis elaboration and internship. The mode of studies is full time, with 240 academic units.

### **Student registrations**

The enrollment of newly admitted students is done within the time frame defined by the relevant ministerial decisions. The registration of the newly admitted students from Classifications ( $\Phi 1 / 192329 / B3 / 16-12-2013$ ), Transfers (Circular 164061 / Z1 / 02-10-2017), and Health Reasons ( $\Phi 151 / 165736 / A5 / 4-10-2017$ ), Foreign ( $\Phi 151 / 156896 / A5 / 20-09-2017$ ) and Greeks abroad ( $\Phi 151 / 165009 / A5 / 03-10-2017$ ) is done based on the current legislation. With the registration of the student in the Department, an individual electronic account is opened for the electronic services offered by PAPEL. Finally, parallel enrollment in two Departments of Higher Education ( $\Phi 253 / 139394 / A5 / 31-08-2016$ ) is not allowed.

### **Duration of the program**

The duration of studies at the Department of Physiotherapy is eight (8) semesters. During the first seven (7) semesters, studies include theoretical teaching, laboratory and clinical training and assignments. In the eighth semester, students are assigned the topic for the preparation of their dissertation if they choose, while the four-month (16 weeks) internship in the profession takes place.

### **Course enrollment**

The enrollement of the courses are made electronically in the available electronic system of the University in each semester of studies after the relevant announcement on the website of the Department. There is the possibility of enrolling in the courses from the educational platforms such as e-class with the use of their institutional account.

### **Degree calculation**

The way of calculating the degree is the same for all the universities of the country and is determined by the Ministerial Decision (B3 / 2166/1987, Law 308 B).

1. For the calculation of the degree of the students who will be admitted to the University from the Academic Year 1987-88 onwards, the grades of all the courses required for obtaining the degree are taken into account (Law1268/1982), as well as the diploma thesis, where it is provided by the Curriculum.

2. (a) To calculate the degree of students's degree, the grade of each course is multiplied by a factor, which is called the course weighting factor, and the sum of the individual products is divided by the sum of the weighting rates of all courses.

(b) the coefficients of the weighting factor range from 1.0 to 2.0 and are calculated as follows:

- Courses with 1 or 2 credits have a weighting factor of 1.0
- Courses with 3 or 4 credits have a weighting factor of 1.5
- Courses with more than 4 credits, as well as the diploma thesis, have a weighting factor of 2.0.

3. If a student has been graded in more courses than corresponds to the minimum number of credits required to obtain the degree according to the Curriculum, he / she may not count the points of a number of optional compulsory courses for the extraction of the degree, provided that the total number of credits resulting from the remaining courses is at least equal to that required to obtain a degree ". The credit units have been calculated based on article 14 of Law 3374/2005 (Government Gazette No. 189 / 02-08-2009).

### **Student scoring system**

The performance in the courses is evaluated with points and each course and educational activity is graded independently in whole or even half points. The grade point average in the student's overall performance is set from zero to ten. The pass grades are five (5) and their highest unless otherwise specified in the study regulations, in which case the basis must be set at a grade greater than five (5). The grade in each course is determined by the teacher, who can organize at his / her discretion written and / or oral exams or rely on intermediate tests,

assignments or laboratory exercises. The way of assessment, the weekly teaching hours, the credits, the content, the way of delivery of the course are described in detail in the course outlines that are included in the Study Guide and are posted on the website of the Department. Students who wish to request a re-examination to improve their grades are given the opportunity in accordance with the terms and conditions set by the Department. If the student fails more than three times in a course, according to the current legislation, he can at his request be examined in that course by a three-member committee of Professors of the Department, who have the same or related subject and are appointed by the Dean. The person in charge of the Professor examination is excluded from the committee. The application for examination by a committee is submitted by the student at least one month before the beginning of the examination period. In case of failure in the specific examination, the student is referred again to the original way of examination. In case of copying, plagiarism or other falsification of the exam result, no grade is announced and, regardless of the imposition of disciplinary sanctions, the student is referred for re-examination in a manner and at a time to be determined by decision of the Department. It is pointed out that plagiarism is a misdemeanor of academic ethics and is prohibited. Specific policy issues related to plagiarism are mentioned in a relevant internal circular approved by the University Senate. The results of the exams are posted on the Internet Information System of the Secretariats by the teacher. Courses in which the student did not receive a promotional grade, he is obliged to repeat them and if it is optional to repeat them or replace them. If for any reason there are objections of students who can not be dealt with in the above context, students contact the Department of Studies which gives an opinion based on the provisions and the history of each case to the Department and in special cases to the Senate of the University (Law 1563 / t.BD / 9-5-2019). In percentages, and since the maximum performance equals 100%, the minimum successful performance is considered to be 50%. The degree is given in the form of a decimal number to the nearest tenth and ranges from 5.0 to 10.0. The degree is given in the form of a decimal number to the nearest tenth and ranges from 5.0 to 10.0. The degree lists the distinctive marks "Excellent", "Very Good" and "Good" depending on the grade as follows:

- "Excellent": From 8.50 up to 10.00 or from 85% up to 100%
- "Very Good": From a grade of 6.50 up to 8.49 or from 65% up to 84.99%
- "Good": From 5.00 up to 6.49 or from 50% up to 64.99%

The above distinctive designations "Excellent", "Very Good" and "Good" characterize only the degree and not the individual performance of students in the courses and other educational activities of the curriculum. The final year student becomes a graduate when he has

fulfilled all the required conditions: He has successfully attended all the compulsory, optional compulsory and any optional courses, he has completed the internship in the profession. In particular, he is declared a graduate from the date submitted through the protocol of the Department and the last required condition. Having the above conditions, the graduate of the Department must accumulate at least 240 credits (ECTS)

### **Student evaluation process**

Students are assessed depending on the type of course (theoretical-laboratory), the nature of the course (clinical or not). The theoretical part of the courses is evaluated with assignments and the final exam. The laboratory part of the courses is evaluated in various ways such as:

- a) with intermediate evaluations (application / demonstration of evaluation methods, goal setting / clinical reasoning, design of intervention programs and application / demonstration of physiotherapy techniques, work, etc.) and
- b) with daily evaluation of the Clinical Practice courses on real patients in the clinics - training stations (application / demonstration of evaluation methods, goal setting, design of intervention programs and application / demonstration of physiotherapy techniques).

### **Recognition of the mobility of academic units in the framework of inter-institutional agreements**

All academic credits accumulated during study abroad or during virtual mobility, as provided for in the Learning Agreement and confirmed by the Certificate of Analytical Grading, are transferred and included in the degree without any additional work or evaluation of the student.

### **ECTS credits policy**

The respective Credits are awarded in accordance with the European Credit Transfer and Accumulation System (ECTS).

### **Title level according to the National Qualifications Framework and the European Qualifications Framework**

The Department of Physiotherapy belongs to the Common Area of Higher Education, as specified by the Bologna Treaty in relation to European Experience and practice (<http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>).

### **Structure of the Curriculum**



The Undergraduate Programme of Physiotherapy Department of the University of Peloponnese, consists of eight (8) semesters of full-time study. It includes courses that accumulate two hundred and forty (240) credits (ECTS), distributed equally in all semesters (30 ECTS per semester).

The total number of offered courses is fifty one (51) with two (2) categories of courses:

1. Mandatory courses
2. Optional courses

Mandatory and optional courses are divided into the following sub-categories:

- a) General Background
- b) Special Background
- c) Specialized Knowledge-Skills Development

Compulsory (minimum) number of courses for obtaining a degree: Forty six (46) or forty seven (47). In the 8th semester there is the possibility of choosing a Thesis or two (2) optional courses instead.

A concise and specific description of all the courses of the Curriculum with distribution of weekly teaching hours and credits (ECTS) is appeared below .

#### Brief description of courses per year

	Semester	Total number of courses	Teaching hours per week			Total hours per week	ECTS
			Lectures	Laboratory exercises	Clinical practice		
1	A	6	18	9	0	27	30
2	B	6	19	6	0	25	30
3	C	6	19	5	2	26	30
4	D	6	17	6	8	31	30
5	E	6	15	7	8	30	30
6	F	5	12	4	14	30	30
7	G	6	17	5	5	27	30
8	H	2 ή 3	6-8	0-1	40-41	48 ή 50	30
		<b>43 ή 44</b>			<b>77 ή 78</b>		<b>240</b>

#### Detailed description per semester

1 <sup>st</sup> Semester							
Course code	Course title	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS

PHYS_1	Anatomy of Musculoskeletal System	GB	3	2	...	5	6
PHYS_2	Anatomy of Nervous System & Internal Organs	GB	3	2	...	5	6
PHYS_3	Biophysics of the Human Body	GB	3	1	...	4	4
PHYS_4	Clinical Kinesiology I	SB	3	2	...	5	6
PHYS_5	Physiology	GB	3	2		5	5
PHYS_OM	Optional Modules	SB	3	...	...	3	3
<b>TOTAL</b>			<b>18</b>	<b>9</b>	<b>0</b>	<b>27</b>	<b>30</b>

2 <sup>nd</sup> Semester							
Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_6	Clinical Biomechanics	SB	3	2	...	5	5
PHYS_7	Clinical Kinesiology II	SB	3	2	...	5	6
PHYS_8	Neurophysiology	SB	3	...	...	3	4
PHYS_9	Orthopaedics	GB	4	...	...	4	5
PHYS_10	Pathology	GB	4	...	...	4	5
PHYS_11	Soft Tissue Mobilization Techniques & Massage	SK-SD	2	2	...	4	5
<b>TOTAL</b>			<b>19</b>	<b>6</b>	<b>0</b>	<b>25</b>	<b>30</b>

3 <sup>rd</sup> Semester							
Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_12	Respiratory Physiotherapy	SK-SD	3	2	1	6	6
PHYS_13	Kinesiotherapy- Therapeutic exercise	SK-SD	3	2	...	5	6
PHYS_14	Clinical Electrotherapy	SK-SD	3	1	...	4	5
PHYS_15	Neurology	GB	4		...	3	4

PHYS_16	Physiotherapy in Cardiovascular Diseases	SK-SD	3	...	1	4	6
PHYS_OM	Optional Modules	OM	3	...	...	3	3
<b>TOTAL</b>			<b>19</b>	<b>5</b>	<b>2</b>	<b>26</b>	<b>30</b>

4 <sup>th</sup> Semester							
Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_17	Principles of Neurorehabilitation	SK-SD	3	-		3	5
PHYS_18	Manual Therapy	SK-SD	3	2	...	5	5
PHYS_19	Clinical Physiotherapy in the Cardiovascular & Respiratory System I	SK-SD	2	...	8	10	7
PHYS_20	Physiotherapy of the Musculoskeletal System I	SK-SD	2	2		5	5
PHYS_21	Physiotherapy Assessment & Clinical Reasoning	SK-SD	3	2		5	5
PHYS_OM	Optional Modules	OM	3	-		3	3
<b>TOTAL</b>			<b>17</b>	<b>6</b>	<b>8</b>	<b>31</b>	<b>30</b>

5 <sup>th</sup> Semester							
Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_22	Electro-Physical Agents in Physiotherapy	SK-SD	2	2	...	4	5
PHYS_23	Clinical Physiotherapy of Musculoskeletal System I	SK-SD	2	...	6	8	7
PHYS_24	Adult Neurological Physiotherapy	SK-SD	3	2	1	6	6
PHYS_25	Physiotherapy of Musculoskeletal System II	SK-SD	3	2		5	5
PHYS_26	Functional Biostatistics Systems	GB	3	1	...	4	4
PHYS_27	Health Informatics	SB	2	...	1	3	3

<b>TOTAL</b>	<b>15</b>	<b>7</b>	<b>8</b>	<b>30</b>	<b>30</b>
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6 <sup>th</sup> Semester							
Course code	Course code	Category	Lecture	Laborator y exercise	Clinical practice	Total hours	ECTS
PHYS_28	Clinical Neurological Physiotherapy	SK-SD	2		8	10	8
PHYS_29	Clinical Physiotherapy of Musculoskeletal System II	SK-SD	2	....	6	8	7
PHYS_30	Paediatric Neurological Physiotherapy	SK-SD	3	2	...	5	5
PHYS_31	Research Methodolgy - Writing scientific essay	SB	3	1	...	4	6
PHYS_32	Clinical Exercise Physiolgy	SK-SD	2	1		3	4
<b>TOTAL</b>			<b>12</b>	<b>4</b>	<b>14</b>	<b>30</b>	<b>30</b>

7 <sup>th</sup> Semester							
Course code	Course code	Category	Lecture	Laborator y exercise	Clinical practice	Total hours	ECTS
PHYS_33	Clinical Pediatric Phsyiotherapy	SK-SD	2	...	5	7	7
PHYS_34	Therapeutic Exercise in Chronic Diseases	SK-SD	3	1		4	5
PHYS_35	Therapeutic Exercise in Special Populations	SK-SD	3	1		4	5
PHYS_36	Rehabilitation- Rehabilitation team	GB	3	1		4	5
PHYS_37	Sports Physiotherapy	SK-SD	3	2		5	5
PHYS_OM	Optional Modules	OM	3			3	3
<b>TOTAL</b>			<b>17</b>	<b>5</b>	<b>5</b>	<b>27</b>	<b>30</b>

8 <sup>th</sup> Semester							
Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_INT	Internship	SK-SD	...	...	40	40	20
PHYS_OM13	Thesis or 2 Optional Modules*	SK-SD	6-8	0 ή 1	0 ή 1	8 ή 10	10
<b>Total</b>			<b>6-8</b>	<b>0 ή 1</b>	<b>40 ή 41</b>	<b>48 ή 50</b>	<b>30</b>

\* As proposed optional modules : a) "Health Economics and Marketing", b) "Pathophysiology"

#### Optional Winter Modules

Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_OP1	Bioethics & Deontology	GB	3	...	..	3	3
PHYS_OP2	Pharmacology	GB	3	-	...	3	3
PHYS_OP3	Surgery	GB	3	...	...	3	3
PHYS_OP4	Primary Health Care	GB	3	...	...	3	3
PHYS_OP5	Health Psychology and Communication Skills	GB	3	...	...	3	3
PHYS_OP6	First Aid	GB	3	1	...	4	3

#### Optional Spring Modules

Course code	Course code	Category	Lecture	Laboratory exercise	Clinical practice	Total hours	ECTS
PHYS_OP7	Health Economics and Marketing	GB	4	...	...	4	5
PHYS_OP8	Diagnostic Imaging Clinical Dietology	GB	3	...	1	4	5
PHYS_OP9	New Technologies	GB	3	1	...	4	5
PHYS_OP10	Electronic Health	GB	2	1	...	3	4
PHYS_OP11	Diagnostic Imaging	GB	3	...	...	3	3
PHYS_OP12	Ergonomics – Prosthetic & Orthotic Devices	GB	4	...	...	4	5
PHYS_OP13	Dissertation Thesis	GB	8	...	...	8	10

## **Program of Undergraduate Studies**

Detailed Course Outlines below

### **Learning outcomes of the program**

The objectives of the curriculum in Physiotherapy Department at the University of Peloponnese are:

- The enhancement of the promotion of knowledge and the development of research in the relevant scientific areas of physiotherapy.
- The creation of a high level of physiotherapists based by the World Confederation of Physiotherapy and the Directives of the European Union, for the benefit of society as a whole and public health.
- The acquisition of high scientific training for research and / or academic career of Physiotherapists in the competitive conditions that are formed in the European and global environment.

Physiotherapy is a dynamic science, which with ever-increasing research establishes and reviews the findings that support its daily practice. The Department aims at the theoretical, clinical and practical education of its students. The goal of the Physiotherapy Department is to cultivate analytical and critical thinking and to support students for active participation in the learning process, which is a lifelong learning, so that they can work as autonomous professionals or as members of the health team and can with adequate to perform physiothreapy of the patient.

Graduates of the Department must be knowledgeable in the Physiotherapy Science, able to promote and protect the health of the individual, to prevent, improve and restore pathological conditions, congenital and acquired, as well as traumatic injuries that cause disorders in various systems of the body, such as e.g. in the musculoskeletal, nervous, respiratory and cardiovascular systems. They must have absolute scientific and practical competence and within a framework of ethical rules be able to select, organize and safely perform Physiotherapy procedures, after a thorough Physiotherapy evaluation.

The Department aims at the implementation of a dynamic and constantly evolving curriculum in order to be fully adapted to the Health Professions and to satisfy the purpose of creating specialized staff. This curriculum must constantly integrate the new knowledge produced, which must be produced by the Department. The Department trains its students to be able to:

offer the appropriate physiotherapy rehabilitation to patients treated in public or private hospitals or institutions

- offer guidance to the family and the community where there is a patient or person with a disability (disabled),
- play an important role in promoting and educating the health and well-being of the public through educational and counseling services
- ergonomically help the patient to control every load during his daily activities

contribute to the training of health science personnel so that they can adopt the most appropriate posture to minimize energy consumption,

- provide advice and educate patients on self-care.

The Department of Physiotherapy educates its students to:

- respect patients' autonomy and work in complete confidentiality,
- provide sufficient information about patients' functional disability so that they can consent to the proposed rehabilitation program
- be familiar with the research process
- be able to develop research for enhancing Physiotherapy Science,
- be ready to adapt the physiotherapy practice to the new conditions of science as it is formed

### **Curriculum evaluation and quality assurance systems**

Quality Assurance in Higher Education is the main goal of the European Higher Education System, to which Greece has joined, along with 47 other countries. A basic principle is the high sense of responsibility of each University towards students and society for the provision of high quality education. The Quality Assurance Unit of the University of Peloponnese (MODIP) is the central coordinating administration of the quality assurance and evaluation procedures of the Foundation. It is responsible for the development of a specific policy, strategy and procedures for the continuous improvement of the quality of the Foundation's work and services. Organizes and operates the internal quality assurance system of the Foundation, coordinates and supports the evaluation procedures of the academic units and other services of the Foundation as well as the external evaluation and certification procedures

of the curricula and the internal quality assurance system of the institution, within the principles, directions and instructions of ADIP. The Information System MO.DI.P. of the University of Peloponnese has been installed and is in operation at <https://modip-is.uop.gr/>

The University's commitment to Quality is reflected and confirmed through the operation of processes and procedures of the Internal Quality Assurance System (ESDP), which

is drafted, implemented, revised on an annual basis, while providing the framework under which members of the academic community, institutional or not, will pursue and achieve the goals of the Foundation. The Internal Quality Assurance System of the Foundation as well as the structure, operation and responsibilities of MODIP are determined in the decision No. 1 / 31.01.2018 of the 121st meeting of the Senate (Government Gazette 698 / 02.03.2018, vol.tB)

The Internal Evaluation Team (OMEA) of the Department plans, plans and coordinates the evaluation process and is responsible for conducting the internal evaluation process where it prepares the Internal Evaluation Report (Law 3374/2005, Article 5 §2 ). At the relevant Academic Unit, the Team monitors the completion of the questionnaires, informs the organs and the members of the Academic Unit about the answers and the results of the dialogue with the teachers and the students and gathers all the necessary relevant data. and, based on these, prepares the internal evaluation report of the Department, which forwards it to MO.DI.P. of the Foundation and and through it to the National Authority for Higher Education (ETH.A.A.E.). Collaborates with ADIP. for the organization and implementation of the External Evaluation.

### **Internship**

The Department of Physiotherapy of the University of Peloponnese will publish an Internship Guide that will be posted on the Department's website. The internship includes the physiotherapy evaluation and treatment of patients, which are included in the cognitive objects of the courses of the curriculum of the Department of Physiotherapy. The purpose of the internship is:

- To educate the students in public, private hospitals and physiothrapeutic clinics where physiotherapy techniques are performed to obtain practical experience.
- To bring students in contact with the work environment and prepares them to be able to be active in it.
- The consolidation, acquisition, practical application and synthesis of the theoretical knowledge and skills acquired.
- To provide the opportunity for students to meet and network with their institutions and staff.
- The promotion of the skills of the trainees and the development of professional consciousness.
- The familiarization of students with the working environment and the requirements of the professional place, as well as with the working relationships and the level of earnings as they are shaped in the Greek reality.



- The cultivation of favorable conditions for the creative meeting of different scientific disciplines and the encouragement of the self-action and the professional ingenuity of the trainees.
- To develop the ability to make informed career choices and enhance their interest in employment.

The internship is performed in the 8th semester of studies with the necessary prerequisite that the student has successfully fulfilled all modules of specialisation (that refer to the current program of studies) as well as 2/3 of the total number of modules. UNIWA's internship constitutes an integral part of the program of each department's program of studies. The duration of the internship is four (4) months and is performed twice a year (in October and in April).

The student is under the supervision of the internship committee of the Physiotherapy department and the Physiotherapist of the health institution, in which he is trained. The internship committee monitors the fields and conditions of the internship. The evaluation is done according to the internship guide of the Department and the current legislation. The student completes the book of the daily Physiotherapy evaluation and therapeutic approach of the treated patients, which is gradually signed by the head of the institution where the internship is prepared and finally by the supervisor of the Department, who has been appointed for this specific internship. The Internship is carried out in accordance with the "Protocol of Actions and Procedures of the Internship". The Internship Committee evaluates the selection criteria of the students in order to place them in internships.

### **Awards -Scholarships**

The University of Peloponnese supports both undergraduate and postgraduate students through scholarships. There are a large number of institutions that provide scholarships to students to complete or continue their studies like:

- Government - Public - Private Institutions
- Legacy Administrators
- Universities
- Ministries
- Embassies
- Foreign Governments
- Research centers

- International organizations
- Associations

In order for the scholarships to be effective, it is good to do it in a systematic and continuous way, because the amount and duration of the scholarships, the dates announced, the conditions and the selection criteria, differ from institution to institution. For the granting of scholarships, in most cases, the submission of supporting documents is required, while in others the participation in a written competition or even an interview. The usual criteria for awarding scholarships are:

- Degree mark
- Subject of studies
- Financial statement of the candidate
- Place of origin
- Grade in written exams
- Age

Students of the first and second cycle of studies can be provided with scholarships with the obligation of students to offer part-time work, up to forty hours per month in the services of the Foundation. First-year students have the right to receive an interest-free educational loan from the country's credit institutions, guaranteed by the Greek government. The loans' repayment is done after the start of their professional employment or the acquisition of individual income.

The conditions for granting a loan to students depend on their academic performance, as well as their social and financial situation of themselves and their family. The procedure and manner of repayment of the loan are determined by a joint decision of the Ministers of Finance and Education, Lifelong Learning and Religions, published in the government newspaper. The provisions of paragraph 8 of article 43 of law 2413/1996 (A'124) for the granting of student loans apply to postgraduate students and doctoral candidates. Information is available at the electronic address <https://career.uop.gr/ypotrofies>

### **Professional rights**

Until 2018, physiotherapy training in Greece was provided only by the Technological Educational Institutes (TEI). With the establishment of the University Departments of Physiotherapy, the legislation should be updated in order to avoid possible problems related to the professional rights of the new graduates. The title of the Department is "Physiotherapy" and the study program corresponds to a recognized scientific field with recognized professional

rights (90 / 1995, FEK 53, vol. A '). The professional rights of the graduates of the Department of Physiotherapy are defined, which provides that...

*.... "graduates who have the professional title "Physiotherapists" and are employed, either independently or in collaboration with doctors, after a relevant medical diagnosis, with the prevention, improvement and rehabilitation of pathological conditions, congenital and acquired, as well as traumatic causing disorders of the skeletal, muscular, nervous, respiratory and cardiovascular systems. .... they have the right to employment in the public and in the wider public sector, in the private sector or as freelancers, and they can establish private Physiotherapy laboratories according to the provisions of the current legislation (PD 29/87). The practice of the profession presupposes the acquisition of a license to practice the profession, issued by the services of the Ministry of Health, Welfare and Social Insurance. In addition, according to article 34 of Law 4316/2014....*

*... "The graduates of the Department of Physiotherapy of the country evaluate, select and perform the acts of a physiotherapist, as they are provided in the b.d. 411/1972, the p.d. 29/1987 and the p.d. 90/1995, as in force, and are contained costed in the Chapter "Physiotherapy" of p.d. 157/1991, as in force, according to a written diagnosis or opinion of the treating doctor, in the places where they work according to the current legislation. "*

Finally, the World Health Organization (WHO) defines Physiotherapists as "Physiotherapists, ISCO code 2264" as a distinct professional specialty, based on the International Standard Classification of Occupations (ISCO, 2008 revision), while the profession of Physiotherapist belongs to the World Health Professions Alliance (WHPA, 2010) as an autonomous Health Profession.

### **Professional profile of the graduates of the Physiotherapy Departments**

Physiotherapists operate either independently as freelancers or as members of the team of Health Scientists and are subject to a code of ethics (Government Gazette 1396 / 6-9-2010). In particular and in accordance with the provisions of Presidential Decree No. 90 (Government Gazette 53 / 08-03-1995):

1. The graduates of the Physiotherapy Department of the School of Health and Welfare Professions have the professional title "Physiotherapists or Physiotherapists" and are employed either independently or in collaboration with doctors, after a relevant medical diagnosis, for the prevention, improvement and rehabilitation of pathogens. as well as traumatic injuries that cause disorders of the skeletal muscle, nervous, respiratory and cardiovascular systems.

2. The graduate Physiotherapist selects and performs the physiotherapy operations after a written diagnosis or opinion of the doctor and in accordance with any relevant instructions. Physiotherapy operations means the means, methods and techniques taught in the Departments of Physiotherapy and provided by current legislation.

3. Physiotherapists have the right to employment:

(a) as executives of the public and wider public sector as defined by the provisions in force at any given time;

(b) as executives in the private sector, in an employment relationship or other form of employment; and

c) as freelancers in a private Physiotherapy Laboratory or in patients' home visits. Graduate physiotherapists have the right to work in the public and wider public sector, as defined by the current provisions, in the private sector or as freelancers, as well as may establish private physiotherapy laboratories in accordance with the provisions of applicable law.

4. The graduate Physiotherapists practice the profession within the framework of their mentioned professional rights, after obtaining a license to practice a profession granted by the services of the Ministry of Health, Welfare and Social Insurance ". The practice of the physiotherapy profession should be done only by those who have the respective professional title, and the corresponding license / certificate of practice, after obtaining a degree from an educational institution of higher education and registration in the registers of the PSF.

### **POSTGRADUATE- DOCTORAL STUDIES**

The Department of Physiotherapy of the University of Peloponnese starts a Doctoral Program. The Regulation of Doctoral Studies defines the rules that govern the Doctoral Studies of the Department of Physiotherapy of the University of Peloponnese. The Regulation s decided by the Assembly of the Department, approved by the Senate, published in the Government Gazette, notified to the Ministry of Education, Research and Religions and posted on the website of the department.

The Doctoral Studies of the Department of Physiotherapy aim at the training of Doctors, who will have the possibility of independent and autonomous promotion of science and research in the field of physiotherapy. The purpose of the Doctoral Studies is fulfilled by the preparation of an original Doctoral Thesis according to the international academic standards under the supervision of a Three-Member Advisory Committee. The department of Physiotherapy awards the Doctoral Degree in the Physiotherapy Science.

## **FACILITIES AND EQUIPMENT**

The Department of Physiotherapy has an institutionalized laboratory: “Laboratory Kinisiology”. The mission of the laboratory is the education of undergraduate and postgraduate students in the basic research and elaboration of doctoral dissertations and applied research, as well as in the elaboration of funded research programs in the subject of the Laboratory. Specifically, the research activity of the Laboratory focuses on the following areas:

- Advancement of science in the field of Physiotherapy and Clinical Biomechanics.
- Development and conduct of basic and applied research, independently or within the framework of funded research programs on issues related to the teaching and research objects of the Laboratory.
- Coverage of the teaching and research needs at the undergraduate and at the postgraduate level of the Department of Physiotherapy of the School of Health Sciences
- Development of collaborations with Institutes, Research Centers, academic institutions and scientific of the country or abroad, whose objectives coincide, are relevant or complement each other with those of the Laboratory.
- Provision of services to private and public companies and Organizations in the form of the provision of specialized and high quality work at the level of studies, consulting services and collaborations in research programs.
- Publication of scientific articles, studies, books, monographs, etc. around the subject of the Laboratory.
- Organization or co-organization of seminars, workshops, symposia, conferences and lectures to promote knowledge and promote the objectives of the Laboratory.
- Organization of lifelong learning activities, schools (summer-winter) and other related initiatives around the subject of the Laboratory.
- Serving the various social needs, in matters dealt with by the Laboratory.
- Strengthening the bibliographic and technological infrastructure of the Department of Physiotherapy of the School of Health Sciences to support research.

The strategic objectives of the Laboratory include:

- The coverage at undergraduate and postgraduate level of teaching and research needs of the Department of Physiotherapy of the University of Peloponnese
- The production of educational material and the support of teaching methods with appropriate audiovisual media

- The promotion, support and documentation of the basic and internationally competitive applied research, study and development in the cognitive objects of the Laboratory
- The design, claiming and execution of research and development programs in order to study and search for techniques and methods for the development of Technology in the cognitive objects of the Laboratory.
- The organization of scientific lectures, workshops, training seminars, symposia, conferences and other scientific events, on topics that fall within the field of knowledge of the Laboratory.
- The application and dissemination of innovative technologies in its areas of interest through the development of collaborations with professors, laboratories, research centers, academic institutions and research and technological institutions of the wider public, private, professional and productive area of Greece and abroad, with relatives or complementary scientific and technological objectives.
- Undertaking the execution of research, research, development or training projects by other bodies, public or private.
- The provision of technical-advisory support and opinions as experts to the members of the University and external bodies, in matters that fall within the cognitive objects of the laboratory, in accordance with the current legislation.
- Supporting the development of products based on state-of-the-art technologies on topics that fall within the cognitive objects of the laboratory.
- The provision of services to individuals and organizations in accordance with current legislation.
- The provision of Lifelong Learning services either through life or remotely independently or in collaboration with other laboratories or agencies, in areas of interest of the Laboratory.
- The provision of certification services of knowledge and skills in the thematic fields of the Laboratory.
- The invitation of Greek and foreign recognized scientists and other personalities.
- Consolidating relationships with society for the medium and long term improvement of health through the transfer of research results and know-how.
- The service of various social needs, when specific assistance is requested in matters dealt with by the Laboratory.
- The wider and generally accepted offer to society as a whole.

### **Laboratory and research equipment**

The educational facilities of the Department consist of the Physiotherapy Laboratory, the Computer Laboratory and classrooms. Two (2) Research Laboratories operate in the Physiotherapy Department, the *Biomechanics Laboratory* and the *Basic Science Laboratory*.

The available equipment of the Department includes:

- Six vicon optoelectronic cameras and 2 Bertec dynamometers
- Therapeutic ultrasound device SONOPULS 490 with multi-frequency treatment head (built-in head) with wheeled base EN-Car U3
- Electrotherapy device with integrated suction (electrotherapy device) ENDOMED 482 + VACOTRON 460, with wheeled base EN-Car U3H, accompanied by peripheral materials such as, belt sets, carbon electrodes, self-adhesive electrode sets and special sponge sets
- IRG ON STAND INFRARED. IR Lamp 250 WATT
- Orthopedic bed (bed) with a hole with the possibility of tilting the upper part
- Cylindrical leatherette pillow with a diameter of 20 cm and a length of 60 cm.
- Sleeping pillow, hypoallergenic washable
- Male body model assembled whole (granted for use by another Department)
- Skeleton models (granted for use by another Department)
- Microscopes
- Electrocardiographs
- Spirometers
- Blood pressure monitors
- Pulse oxymeters

### **DISSERTATION WRITING GUIDE**

In the Department of Physiotherapy, students have the option of writing a dissertation in the 5th semester of study. The purpose of the dissertation is to engage the student in a subject of his specialty, with the aim of gaining experience from the completed study that he will prepare, the use of relevant knowledge from his studies so far and the deepening and development of his synthetic ability. With the elaboration of the dissertation, he compiles and presents a scientifically substantiated text, which is either a research review, a research study or a case study. The student through the elaboration of the work develops and develops skills such as creating a question, self-collection, processing, analysis and evaluation, related to this special subject, the scientific material with critical thinking, its composition in order to approach the

initial question with aptness and validity. It is based on the existing literature (evidences based physiotherapy) and utilizes the knowledge and skills acquired during their studies. The teaching units of the dissertation are 10. Alternatively the student can choose 2 elective courses instead of the dissertation.

## **STUDENTS SERVICES AND INFRASTRUCTURE**

### **Library**

The University of Peloponnese in Spartioperates a modern library that offers its services to students and members of the academic community. It has an area of 125 square meters, has a reading room with a capacity of 20 seats and is equipped with 11 computers so that users can do bibliographic searches. It has more than 8,500 books and a large number of scientific journals on the science of Sports Management. It also has access to international libraries via the Internet, while all users have full text access to electronic journals, electronic databases and electronic books of international scope through the Hellenic Academic Libraries Consortium (HEAL-link). Free internet access is available on site in the library via a built-in wireless (WiFi) system. Opening hours for the public are adjusted according to the needs of the educational community at the beginning of the Academic Year.

Contact address: Library & Information Center

University of Peloponnese, Efstathiou & Stamatikis Valiotti & Plataion Avenue, 231 00, Sparti, on the ground floor, Telephone: 27310 89653, Fax: 27310 89653

More information is available at <http://library.uop.gr/parartimata/sparti-library>

### **Student care**

The Department of Student Affairs of the University of Peloponnese aims to improve the living conditions of its students. The possibility of providing good dining and health serevies and student residences of the students of the University of Peloponnese are its priorities. The Student Welfare website (<http://foitmer.uop.gr/>) provides information on all student welfare issues such as:

1. General announcements
2. Student Welfare Council
3. Dining Services
4. Student residencies
5. Student's allowance
6. Health Servises



7. Supporting students in their studies
8. Teaching Support Office
9. Sports activities
10. Cultural activities
11. Disabled (formulation and implementation of 14 equality policies)
12. Counseling of studies
13. Advocate office
14. Internship <https://praktiki.uop.gr/>
15. Student support service
16. Care office <http://foitmer.uop.gr/#:~:text=%C2%A0http%3A//career.uop.gr/>

### **Dinning services**

More detailed information on free feeding, the application process as well as the necessary supporting documents are provided at the beginning of each academic year by the Student Welfare Department and on the following website <http://foitmer.uop.gr/category/sitisi/> Applications from freshmen, in order to have the right to free feeding, they are accepted after the completion of the registrations, through the electronic address: <https://sitisi.uop.gr/>

### **Student residencies**

Information and announcements about the application process and the necessary supporting documents are provided at the beginning of each academic year related to the student of the students residencies and are available at:

<http://foitmer.uop.gr/category/stegasi/>

<http://foitmer.uop.gr/foititiko-stegastiko-epidoma/>

### **Health care**

Students are entitled to full medical and hospital care in the National Health System (NSS) only with the use of their Greek Social Security Number. Information on student healthcare is available online <http://foitmer.uop.gr/iatrofarmakeytiki/>

### **Sports and cultural activities**

Sport activities

Information on sports activities at the University is available online <http://foitmer.uop.gr/athlitikes-drastiriotites/>

### **International mobility**

The University of Peloponnese participates in the Erasmus+ programme and has been awarded by the European Commission with the Erasmus Charter for Higher Education (ECHE) 2021-2027. The Department of Physiotherapy following the University's policies participates in the Erasmus+ programme and pursues the establishment and application of bilateral agreements for mobility.

For more information, please consult the following web pages:

<http://erasmus.uop.gr/> ( Erasmus+ webpage of the University of Peloponnese)

<https://physiotherapy.uop.gr/en/home-2/> (Department's website)

<http://erasmus.uop.gr/index.php/2011-09-02-06-39-39> (Bilateral Agreements)

<http://erasmus.uop.gr/images/stories/files/announce/2021-22/odigos-spoudon-EN.pdf>

(Study Guide of the University of Peloponnese)

All courses are taught in the Modern Greek language; however, selected courses are available to incoming students through special arrangements with the responsible professors, such as study material and exams in English, assignment of essays/projects in English with the use of English bibliography etc.

Contact details: Erasmus+ Departmental Coordinator: Dr. Antonia Marazioti, Assistant Professor, [a.marazioti@uop.gr](mailto:a.marazioti@uop.gr)

Erasmus Office, University of Peloponnese: Mrs Vasiliki Gionna, Email:

[erasmus@uop.gr](mailto:erasmus@uop.gr)

Erasmus+ University of Peloponnese website: <http://erasmus.uop.gr/>

### **Student's Advocate**

The Student Ombudsman mediates exclusively between students of the University of Peloponnese and professors or administrative services of the institution (Law no. 4009 no. 195 / 6-9-2011) in order to:

- 1) the observance of legality in the context of academic freedom
- 2) the treatment of maladministration and the preservation of the proper functioning of the institution.

The Student Advocate has no responsibility for student examinations and grading. The Student Ombudsman investigates cases ex officio or after a student report and mediates in the competent bodies of the institution for their resolution. It can request from the services of the Foundation any information, document or other evidence about the case, examine persons, perform an autopsy and order an expert opinion. If it finds that in a specific case the legality is not observed, that there are cases of mismanagement or the proper functioning of the institution is disturbed, it draws up a conclusion which notifies it to the professor concerned or the relevant administrative department and the student who submitted the report and mediated in an appropriate manner to resolve the problem.

Information is available at the email address <http://foitmer.uop.gr/grafeio-sinygorou>

## **COURSE OUTLINES**

### **1. 1<sup>st</sup> YEAR**

#### **1.1 1<sup>st</sup> SEMESTER**

##### **1.1.1 ANATOMY OF MUSCULOSKELETAL SYSTEM**

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	<b>1<sup>st</sup></b>
<b>COURSE TITLE</b>	<b>ANATOMY OF MUSCULOSKELETAL SYSTEM</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
<b>LECTURES</b>		<b>3</b>	<b>6</b>
<b>LABORATORY EXERCISE</b>		<b>2</b>	
<b>COURSE TYPE</b>	<b>GENERAL BACKGROUND</b>		
<b>PREREQUISITE COURSES:</b>	<b>NO</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		

<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/PTH114/">https://eclass.uop.gr/courses/PTH114/</a>

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. <i>describes and names the components of any simple or complex musculoskeletal structure of the human body;</i></li> <li>2. <i>describes and names the structure, arrangement and function of the musculoskeletal system as a whole;</i></li> <li>3. <i>identifies, names and demonstrates the anatomical parts of each individual musculoskeletal structure of the human body on prototypes;</i></li> <li>4. <i>recognizes, names and demonstrates the anatomical features of all the complex musculoskeletal structures (e.g., joints) in the human model, and</i></li> <li>5. <i>removes and repositions every musculoskeletal structure in the human model.</i></li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• <i>Search, analysis and synthesis of data and information, using the necessary technologies.</i></li> <li>• <i>Adaptation to new situations.</i></li> <li>• <i>Decision making.</i></li> <li>• <i>Autonomous work.</i></li> <li>• <i>Teamwork.</i></li> <li>• <i>Promoting free, creative and inductive thinking.</i></li> <li>• <i>Work in an international environment.</i></li> <li>• <i>Work in an intercultural environment.</i></li> <li>• <i>Production of new research ideas.</i></li> </ul>

## SYLLABUS

<p><b>A. Contents of the theoretical part of the course.</b></p> <p><b>Section 1. Osteology.</b></p> <ul style="list-style-type: none"> <li>- <i>Bone structure, histology, perfusion, innervation, growth. - The types of bones. The role of bones as organs and the philosophy of their distribution in the human body.</i></li> <li>- <i>Introduction to the architecture of the human body: levels, axes of motion, nomenclature.</i></li> </ul> <p><b>Section 2. Skull and Spine Bones.</b></p> <ul style="list-style-type: none"> <li>- <i>Skull bones, species, role, distribution, description and nomenclature. Vertebrae: Species, anatomical features (articular surfaces, holes, etc.), distribution, description and nomenclature. Intervertebral disc: histological features and its role.</i></li> <li>- <i>Spine: cervical spine, thoracic spine, lumbar spine, thoracic cage. Convexities, description, nomenclature and role.</i></li> </ul> <p><b>Section 3. Upper Limb Bones.</b></p> <ul style="list-style-type: none"> <li>- <i>Bones of the shoulder girdle, the humerus, the bones of the forearm and the extremity of the hand. Description, anatomical features and nomenclature of each bone (articular surfaces, tubercles, tubers, condyles etc.), types and their role.</i></li> </ul> <p><b>Section 4. Pelvic and Lower Limb Bones.</b></p>
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- Pelvic bones, femur, tibia and limb bones.
- Description, anatomical features and nomenclature of each bone (articular surfaces, tubercles, tubers, condyles etc.), types and their role.

### **Section 5. Joints and Muscles.**

- Types of joints, role, histology and characteristics of joint surfaces (nutrition, perfusion, innervation, etc.), joint pocket. Links, histological features, role and philosophy of their distribution on the joints. Muscle, tendon, myotendinous whole. Histological features. Muscle types and their role.

### **Section 6. Shoulder Region.**

- Sternoclavicular, acromioclavicular and "scapulothoracic" joint. Anatomical features, description, role and nomenclature. Muscles that act on the joints in detail (description, nomenclature, protrusions, protrusions, etc.).
- Shoulder joint. Anatomical features, description, role and nomenclature. Muscles that act on the joint in detail (description, nomenclature, origins, insertions, etc.).

### **Section 7. Elbow, Forearm, Wrist.**

- Elbow and forearm joints. Anatomical features, description, role and nomenclature.
- Muscles that act on the joints in detail (description, nomenclature, protrusions, protrusions, etc.).
- Wrist joint. Anatomical features, description, role and nomenclature. Muscles that act on the joint in detail (description, nomenclature, origins, insertions, etc.).

### **Section 8. Hand.**

- Joints of the wrist and thumb. Anatomical features, description, role and nomenclature. Muscles that act on the joints in detail (description, nomenclature, protrusions, protrusions, etc.).

### **Section 9. Hip.**

- Hip joint. Anatomical features, description, role and nomenclature (pocket, ligaments, serous pockets, etc.). Muscles that act on the joint in detail (description, nomenclature, origins, insertions, etc.).

### **Section 10. Knee.**

- Tibiofemoral and patellofemoral joint. Anatomical features, description, role and nomenclature (pockets, ligaments, menisci, serous bursa, etc.). Muscles that act on the joints in detail (description, nomenclature, origins, insertions etc.).

### **Section 11. Foot.**

- Ankle, subtalar and heel joints of the front foot. Anatomical features, description, role and nomenclature. Muscles that act on the joints in detail (description, nomenclature, origins, insertions, etc.).

### **Section 12. Skull and Cervical Spine.**

- Skull joints. Anatomical features, description, role and nomenclature. Facial muscles in detail (description, nomenclature, origins, insertions, etc.). Joints of the cervical spine. Anatomical features, description, role and nomenclature. Muscles that act in the cervical spine in detail (description, nomenclature, origins, insertions, etc.).

### **Section 13. Thoracic and Lumbar Spine.**

- *Joints of the thoracic spine. Anatomical features, description, role and nomenclature (pockets, ligaments, serous bursa, etc.). Muscles that act in the thoracic spine in detail (description, nomenclature, origins, insertions, etc.). Joints of the lumbar spine. Anatomical features, description, role and nomenclature. Muscles that act in the lumbar spine in detail (description, nomenclature, origins, insertions, etc.).*
- *English terminology related to the subject of the course.*

#### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated in accordance with the study regulations of the Institution and the way of evaluation of the course mentioned below.*

### **B. Contents of the laboratory part of the course.**

#### **Section 1. Osteology.**

- *Understanding, recognizing, naming and demonstrating all the individual structures of bone on a model (tissues, vessels, nerves, etc.). Understanding, recognizing, naming and displaying all types of bones on models (long, wide, etc.).*
- *Evaluation of the students.*

#### **Section 2. Skull and Spine Bones.**

- *Understanding, recognition, naming and demonstration of all the bones of the skull as well as their anatomical features (holes, joint surfaces, tumors, etc.) on models.*
- *Understanding, recognition, naming and demonstration of all the vertebrae of the spine as well as their anatomical features (holes, spinal canal, teeth, articular surfaces, tumors, etc.) on models. Understanding, recognizing, naming and demonstrating the spine as a whole, together with the intervertebral discs, the ribs and the thoracic cage on models.*
- *Evaluation of the students.*

#### **Section 3. Upper Limb Bones.**

- *Understanding, identification, naming and demonstration of all the bones of the upper limb as well as their anatomical features (joint surfaces, tufts, tumors, etc.) on models.*
- *Evaluation of the students.*

#### **Section 4. Pelvic and Lower Limb Bones.**

- *Understanding, identification, naming and demonstration of all the bones of the pelvis and lower extremity as well as their anatomical features (articular surfaces, tufts, lumps, etc.) on models.*
- *Evaluation of the students.*

#### **Section 5. Joints and Muscles.**

- *Understanding, recognizing, naming and demonstrating all types and structures of a joint (joint surfaces, joint pocket, ligament, etc.) on templates. - Understanding, recognition, naming and demonstration of all types and structures of a muscle (Origins, Insertions, Muscle Belly, Tendon, etc.) on models.*
- *Evaluation of the students.*

#### **Section 6. Shoulder Region.**

- *Understanding, recognition, naming and demonstration of all the joints of the shoulder girdle and shoulder, as well as their anatomical features (joint surfaces, pockets, ligaments, etc.) on models.*
- *Understanding, recognizing, naming and demonstrating all the muscles of the shoulder girdle and shoulder, as well as their anatomical features (Origins, Insertions, etc.) on models.*
- *Understanding, identification, naming and demonstration of all the above components of the shoulder girdle and shoulder joints in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 7. Elbow, Forearm, Wrist.**

- *Understanding, recognition, naming and demonstration of the joints of the elbow, forearm and wrist, as well as their anatomical features (joint surfaces, pockets, ligaments, etc.) on models.*
- *Understanding, recognition, naming and demonstration of all the muscles of the elbow, forearm and wrist, as well as their anatomical features (Origins, Insertions, etc.) on models.*
- *Understanding, identification, naming and demonstration of all the above-mentioned components of the above joints in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 8. Hand.**

- *Understanding, recognition, naming and demonstration of all the joints of the wrist as well as their anatomical features (joint surfaces, pockets, ligaments, pulleys, etc.) on models.*
- *Understanding, recognition, naming and demonstration of all the muscles of the limb as well as their anatomical features (origins, insertions, etc.) on models.*
- *Understand, identify, name and demonstrate all of the above components of the wrist joints in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 9. Hip.**

- *Understanding, recognition, naming and demonstration of the hip joint as well as its anatomical features (joint surfaces, pockets, ligaments, etc.) on models.*
- *Understanding, recognition, naming and demonstration of all the muscles of the hip as well as their anatomical features (origins, insertions, etc.) on models.*
- *Understanding, identification, naming and demonstration of all the above components of the hip joint in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 10. Knee.**

- *Understanding, recognition, naming and demonstration of all knee joints as well as their anatomical features (joint surfaces, pockets, ligaments, menisci, etc.) on models.*
- *Understanding, recognizing, naming and demonstrating all the muscles of the knee as well as their anatomical features (origins, insertions, etc.) on models.*
- *Understanding, recognizing, naming and demonstrating all the above components of the knee joints in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 11. Foot.**

- *Understanding, recognition, naming and demonstration of all the joints of the foot as well as their anatomical features (joint surfaces, pockets, ligaments, etc.) on models.*
- *Understanding, recognition, naming and demonstration of all the muscles of the foot limb as well as their anatomical features (origins, insertions, etc.) on models.*
- *Understanding, identification, naming and demonstration of all the above components of the ankle joints in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 12. Skull and Cervical Spine.**

- *Understanding, recognition, naming and demonstration of all facial muscles as well as their anatomical features (origins, insertions, etc.) on models.*
- *Understanding, recognition, naming and demonstration of all the joints of the cervical spine as well as their anatomical features (joint surfaces, follicles, ligaments, intervertebral discs, spinal canal, etc.) on templates.*
- *Understanding, recognition, naming and demonstration of all the muscles of the cervical spine as well as their anatomical features (origins, insertions, etc.) on models.*

- *Understanding, recognition, naming and demonstration of all the above components of the joints of the cervical spine in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 13. Thoracic and Lumbar Spine.**

- *Understanding, recognition, naming and demonstration of all joints of the thoracic and lumbar spine as well as their anatomical features (joint surfaces, follicles, ligaments, intervertebral discs, spinal canal, etc.).*
- *Understanding, recognition, naming and demonstration of all the muscles of the thoracic and lumbar spine as well as their anatomical features (origins, insertions, etc.) on models.*
- *Understanding, identification, naming and demonstration of all the above components of the joints of the thoracic and lumbar spine in layers (topographic anatomy) on models.*
- *Evaluation of the students.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p><i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i></p> <p><i>Laboratory part</i></p> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration using models and images of organs and systems of the human body.</i></li> <li>• <i>Work in small groups.</i></li> <li>• <i>Presentations of the students.</i></li> </ul> <p><i>Learning process support through the electronic platform e-class, usage of PC.</i></p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory part</i>	<i>26 hours</i>
	<i>Study of bibliography</i>	<i>85 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>150 hours (6 ECTS)</i>



<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</i></p>
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## ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

### Greek bibliography:

1. *Platzer, W., Fritsch, H., Kohnel, W., Kahle, W., & Frotscher, M. (2011). Εγχειρίδιο περιγραφικής ανατομικής (3η βελτιωμένη έκδοση). Εκδόσεις Πασχαλίδης.*
2. *Sobotta, J. (2017). Άτλαντας ανατομικής του ανθρώπου. Εκδόσεις Παρισιάνου.*
3. *Moore, K. L. (2012). Κλινική ανατομία. Εκδόσεις Broken Hill.*
4. *Agur, A. (2010). Grant's Ανατομία. Εκδόσεις Broken Hill.*
5. *Marieb, E., Wilhelm, P., & Wallatt, J. (2018). Ανατομία (8η έκδοση). Ιατρικές εκδόσεις Λαγός.*
6. *Hochschild, J. (2019). Λειτουργική ανατομική του κινητικού συστήματος. Εκδόσεις Ι. Κωνσταντάρας.*
7. *Gilroy, A. M. (2019). Ανατομία του ανθρώπου. Εκδόσεις Ι. Κωνσταντάρας.*
8. *Drake, R., Vogl, W., & Mitchell, M. A. (2006). GRAY'S Ανατομία, Τόμος I & II. Εκδόσεις Πασχαλίδης.*
9. *Larsen, W. (2007). Ανατομία – ανάπτυξη, λειτουργία, κλινικές συσχετίσεις. Εκδόσεις Παρισιάνος.*
10. *Netter, F. (2003). Ανατομία του Ανθρώπου. Εκδόσεις Πασχαλίδης.*
11. *Μπαλτόπουλος, Π. (2003). Ανατομική του Ανθρώπου, Δομή και Λειτουργία, Τόμος Β'. Εκδόσεις Πασχαλίδης.*
12. *Platzer, W. (1998). Εγχειρίδιο Ανατομικής του ανθρώπου με έγχρωμο άτλαντα (3 τόμοι). Εκδόσεις Λίτσας.*
13. *Stone, R. (2000). Εγχειρίδιο των σκελετικών μυών. Εκδόσεις Παρισιάνος.*

## 1.1.2 ANATOMY OF THE NERVOUS SYSTEM AND ORGANS

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	1 <sup>st</sup>
<b>COURSE TITLE</b>	ANATOMY OF THE NERVOUS SYSTEM AND ORGANS		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	6
LABORATORY EXERCISE		2	
<b>COURSE TYPE</b>	GENERAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/PTH114/">https://eclass.uop.gr/courses/PTH114/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. describes and names the components of any simple or complex musculoskeletal structure of the human body,</li> <li>2. describes and names the structure, arrangement and function of the musculoskeletal system as a whole,</li> <li>3. identifies, names and demonstrates the anatomical parts of each individual musculoskeletal structure of the human body on prototypes,</li> <li>4. recognizes, names, and demonstrates the anatomical features of all the complex musculoskeletal structures (e.g., joints) in the human model, and</li> <li>5. removes and repositions every musculoskeletal structure in the human model.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Search, analysis and synthesis of data and information, using the necessary technologies.</li> <li>• Adaptation to new situations.</li> </ul>

- *Decision making.*
- *Autonomous work.*
- *Teamwork.*
- *Promoting free, creative and inductive thinking.*
- *Work in an international environment.*
- *Work in an intercultural environment.*
- *Production of new research ideas.*

## **SYLLABUS**

### **A. Contents of the theoretical part of the course.**

#### **Section 1. Introduction to human systems and internal organs.**

- *Introduction and rough description of the systems of the human body.*
- *Introduction and rough description of the internal organs.*
- *Introduction to viscera.*
- *Relationships between internal organs and viscera.*

#### **Section 2. Nervous system I.**

- *Central Nervous System.*
- *Hemispheres and pods.*
- *Brain centers.*
- *Connections of hemispheres.*
- *Cerebellum.*
- *Elongated marrow.*
- *Spinal cord.*

#### **Section 3. Nervous system II.**

- *Meninges of the brain and spinal cord.*
- *Willis-Hexagon Brain Vessels.*
- *Venous sinuses.*
- *Cerebrospinal fluid (CSF). Production and circulation of CSF.*

#### **Section 4. Nervous system III.**

- *Peripheral nervous system.*
- *Cerebral conjunctiva and spinal nerves. Detailed description.*

#### **Section 5. Nervous system IV.**

- *Grids (Cervical-Arm-Lumbar-Sanctuary-Vaginal-Coccygeal). Detailed description.*
- *Plant or autonomic nervous system (Sympathetic-Parasympathetic).*

#### **Section 6. Operating systems.**

- *Pyramidal way.*
- *Extrapyramidal motor system.*
- *Finishing kinetic plates.*
- *Muscular spindle.*
- *Final kinetic path.*
- *Sensory skin organs.*
- *A path of critical and primary aesthetics.*
- *Taste and smell organs.*
- *Limbic system.*

**Section 7. Sensory organs.**

- *Eye focusing on the eye muscles and oculomotor nerves.*
- *Hearing and balance instruments (inner, middle and outer ear, balance instruments, vestibules pathways and cells).*

**Section 8. Respiratory system.**

- *Upper respiratory tract (Nose, nasal and oral part of the pharynx, larynx).*
- *Lower respiratory tract (Lungs, trachea, bronchi and branches, alveoli, pleura, etc)*
- *Lung vascularity.*

**Section 9. Circulatory system.**

- *Heart.*
- *Vessels.*
- *Lymph node or lymphatic system.*

**Section 10. Peptic system.**

- *Rough description of the organs that make up the digestive tract (Intestinal tract, Oral cavity, Pharynx, Esophagus, Stomach, Small intestine, Large intestine).*
- *Digestive glands (Liver, Pancreas, Spleen).*

**Section 11. Urinary system.**

- *Description of the parts of the Urinary System (Kidneys - kidney, pelvis).*
- *Urinals - bladder - urethra (male-female).*

**Section 12. Genital system.**

- *Male genital system. Description of the male external and internal genitals.*
- *Female genital system. Description of the external and internal genitals of the woman. Breast.*

**Section 13. System of endocrine glands.**

- *Description of the main endocrine glands.*
- *English terminology related to the subject of the course.*

**Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated in accordance with the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**B. Contents of the laboratory part of the course.****Section 1. Introduction to viscera.**

- *Separation on the model with the assembled instruments of the 9 anatomical areas of the abdomen. Positioning of the abdominal organs in the respective anatomical areas.*
- *Evaluation of the students.*

## **Section 2. Nervous system I.**

- *Demonstration of the parts of the Central Nervous System (cerebral hemispheres, stem, cerebellum and spinal cord). Demonstration of the basic anatomical points of the sections of the CNS.*
- *Evaluation of the students.*

## **Section 3. Nervous system II.**

- *Demonstration of the parts of the Central Nervous System (Brain and spinal meninges, Willis-Hexagon Brain Vessels, Venous sinuses, Cerebrospinal fluid).*
- *Evaluation of the students.*

## **Section 4. Nervous system III.**

- *Demonstration of the parts of the Peripheral nervous system. Demonstration of the course of cerebral conjugations (skull holes). Peripheral nervous system.*
- *Evaluation of the students.*

## **Section 5. Nervous system IV.**

- *Demonstration of the basic nerves of the various plexuses (cervical-lumbar-sacral) in the muscular trunk.*
- *Evaluation of the students.*

## **Section 6. Operating systems.**

- *Demonstration of functional systems and sensory organs (muscular spindle, skin, etc.)*
- *Demonstration of the skin model and its components (hairs, sebaceous, sweat glands).*
- *Evaluation of the students.*

## **Section 7. Sensory organs.**

- *Demonstration of the parts and basic anatomical elements of the eye (bulb - oculomotor muscles - tear device - eyelids).*
- *Demonstration of the parts and basic anatomical elements of the hearing organ (outside - middle - inside ears).*
- *Evaluation of the students.*

## **Section 8. Respiratory system I.**

- *Demonstration of the parts and the basic anatomical elements of the upper respiratory tract (Nose, nasal and oral part of the pharynx, larynx).*
- *Evaluation of the students.*

## **Section 9. Respiratory system II.**

- *Demonstration of the parts and basic anatomical elements of the lower respiratory tract (Lungs, trachea, bronchi and branches, alveolus, pleura, etc).*
- *Evaluation of the students.*

## **Section 10. Circulatory system.**

- *Demonstration of a heart model and its large vessels. Opening of the heart and display of cavities, valves, tunics. Demonstration of coronary vessels, main cerebral vessels, large cervical vessels, main vessels of the chest, abdomen, upper and lower extremities.*
- *Evaluation of the students.*

### Section 11. Digestive system.

- *Demonstration of the organs of the digestive system and the large digestive glands (liver-pancreas). Placing them on the model.*
- *Demonstration of the basic anatomical elements of each organ, the biliary system (extrahepatic) and the anatomical parts of the pancreas.*
- *Evaluation of the students.*

### Section 12. Urinary system.

- *Demonstration of the organs of the urinary system (male-female).*
- *Demonstration of the anatomical relationships and the basic anatomical points of the above organs.*
- *Evaluation of the students.*

### Section 13. Genital system - Endocrine gland system.

- *Demonstration of the organs of the genital systems (male-female). Demonstration of the anatomical relationships and the basic anatomical points of the above organs.*
- *Demonstration of the main glands of the Endocrine system (thyroid - parathyroid glands - adrenal glands).*
- *Evaluation of the students.*

### Section 14. Final Evaluation of the Students

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p><i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i></p> <p><i>Laboratory part</i></p> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration using models and images of organs and systems of the human body.</i></li> <li>• <i>Work in small groups.</i></li> <li>• <i>Presentations of the students.</i></li> </ul> <p><i>Learning process support through the electronic platform e-class, usage of PC.</i></p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory part</i>	<i>26 hours</i>

	Study of bibliography	85 hours
	Course total (25 hours workload per credit unit)	150 hours (6 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

##### Greek bibliography:

1. Platzter, W., Fritsch, H., Kohnel, W., Kahle, W., & Frotscher, M. (2011). Εγχειρίδιο περιγραφικής ανατομικής (3η βελτιωμένη έκδοση). Εκδόσεις Πασχαλίδης.
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3. Moore, K. L. (2012). Κλινική ανατομία. Εκδόσεις Broken Hill.
4. Agur, A. (2010). Grants's Ανατομία. Εκδόσεις Broken Hill.
5. Marieb, E., Wilhelm, P., & Wallatt, J. (2018). Ανατομία (8η έκδοση). Ιατρικές εκδόσεις Λαγός.
6. Hochschild, J. (2019). Λειτουργική ανατομική του κινητικού συστήματος. Εκδόσεις Ι. Κωνσταντάρας.
7. Gilroy, A. M. (2019). Ανατομία του ανθρώπου. Εκδόσεις Ι. Κωνσταντάρας.
8. Drake, R., Vogl, W., & Mitchell, M. A. (2006). GRAY'S Ανατομία, Τόμος I & II. Εκδόσεις Πασχαλίδης.
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10. Netter, F. (2003). Ανατομία του Ανθρώπου. Εκδόσεις Πασχαλίδης.
11. Μπαλτόπουλος, Π. (2003). Ανατομική του Ανθρώπου, Δομή και Λειτουργία, Τόμος Β'. Εκδόσεις Πασχαλίδης.
12. Platzter, W. (1998). Εγχειρίδιο Ανατομικής του ανθρώπου με έγχρωμο άτλαντα (3 τόμοι). Εκδόσεις Λίτσας.
13. Stone, R. (2000). Εγχειρίδιο των σκελετικών μυών. Εκδόσεις Παρισιάνος.

## 1.1.3 BIOPHYSICS OF THE HUMAN BODY

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	<b>1<sup>st</sup></b>
<b>COURSE TITLE</b>	<b>BIOPHYSICS OF THE HUMAN BODY</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
<b>LECTURES</b>		<b>3</b>	<b>3</b>
<b>LABORATORY EXERCISE</b>		<b>1</b>	
<b>COURSE TYPE</b>	<b>GENERAL BACKGROUND</b>		
<b>PREREQUISITE COURSES:</b>	<b>NO</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2413/">https://eclass.uop.gr/courses/2413/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<b>The student will be able after the end of the course to:</b>
<ol style="list-style-type: none"> <li>1. <i>interprets the basic biological and physiological mechanisms of the human body, based on the principles of Physics.</i></li> <li>2. <i>estimates quantities and quantities, through simple calculations derived from measurements, application examples and calculation exercises.</i></li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• <i>Search, analysis and synthesis of data and information, using the necessary technologies.</i></li> </ul>



- *Adaptation to new situations.*
- *Decision making.*
- *Autonomous work.*
- *Teamwork.*
- *Promoting free, creative and inductive thinking.*
- *Work in an international environment.*
- *Work in an intercultural environment.*
- *Production of new research ideas.*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction of the course (presentation of objectives, content, teaching and assessment method, bibliography).

- *Muscle and tendon.*
- *Passive muscle tendency.*
- *Strength production and passive muscle length-tension curve.*
- *Model describing the production of active contraction.*

#### Section 2. Work and power in the human body.

- *Work.*
- *Power.*
- *Active curve of length-muscle tension.*

#### Section 3. Biological engineering: Muscles and forces in the human body.

- *Graphical and mathematical methods of force analysis*
- *internal and external forces and torque.*
- *Methods for determining the torque around a joint.*

#### Section 4. Examples of applications. Exercises.

- *Construction of a free body diagram.*
- *Steps to solve biophysics problems.*
- *Systems in balance.*
- *Resolution of the articular reaction force - clinical significance.*

#### Section 5. Physics of the human skeleton. Bone structure, composition and strength.

- *Bone tissue function.*
- *Structural subunit of the solid bone.*
- *Osteoblasts - osteoclasts - fibroblasts.*
- *Bone and applied forces.*
- *Wolff's law - applications.*
- *Brief global picture of joint pathology.*

#### Section 6. Heat. Basic laws and applications. State of matter. Convection. Thermal radiation.

- *Black body radiation.*
- *First and second law of thermodynamics.*
- *The difference between heat and temperature.*
- *The ways of heat transfer.*
- *The specific heat.*
- *The thermal conductivity.*
- *Therapeutic indications based on biophysical characteristics.*

### **Section 7. Electrical signals.**

- *Neuromuscular electrical stimulation - biophysical characteristics.*
- *Transcutaneous electrical nerve stimulation - biophysical characteristics.*

### **Section 8. Cryotherapy. Hot and cold applications. Exercises.**

- *Basic principles of using cryotherapy.*
- *Biophysical characteristics of cryotherapy.*
- *Cooling of superficial and deep soft tissues based on biophysical characteristics.*
- *Ways of transferring thermal energy in cryotherapy.*

### **Section 9. Oscillations and waves. Sounds and ultrasounds. Diagnostic and therapeutic applications. Exercises.**

- *Ultrasound acoustic field.*
- *Biophysical characteristics of ultrasound: absorbency, penetration, reflection, refraction and frequency.*
- *Ultrasound beam transmission.*
- *Thermal and non-thermal effects of ultrasound.*

### **Section 10. Electromagnetic radiation.**

- *Light sources.*
- *Basic principles of lasers.*
- *Laser systems.*
- *Radiation properties.*

### **Section 11. Light-tissue interaction.**

- *Applications of lasers in medicine and physiotherapy.*
- *Therapeutic indications based on biophysical characteristics.*
- *Safety of use and operation of laser systems.*
- *Protection from laser radiation.*

### **Section 12. Electric diathermy.**

- *Electrical and magnetic properties.*
- *Biodynamics.*
- *Biophysical characteristics.*
- *Electromagnetic spectrum.*
- *Electromagnetic energy.*
- *Relationship between frequency, wavelength and energy of electromagnetic radiation.*

### **Section 13. Hydrotherapy. Biophysical characteristics of water.**

- *Biophysical characteristics of water.*
- *The inherent properties of water - density, specific gravity, viscosity.*
- *The thermal properties of water - specific heat, thermal conductivity.*
- *Mechanical properties of water - hydrostatic pressure, buoyancy, tensile strength.*
- *English terminology related to the subject of the course.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated in accordance with the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Familiarity in the laboratory with concepts related to:**

- *The passive tendency of the muscle.*
- *The production of force with respect to the passive muscle length curve.*
- *The analysis of concepts such as the myotendinous whole.*
- *Evaluation of the students.*

### **Section 2. Clinical applications in:**

- *Simple movements of the human body.*
- *Analysis of important concepts (work and power).*
- *Familiarity with laboratory techniques concerning the active elongation curve and the model of producing active contraction.*
- *Evaluation of the students.*

### **Section 3. Practical application in biological engineering.**

- *Analysis of the effect of forces on the body by graphic and mathematical methods.*
- *Analysis of internal and external forces and moments.*
- *Application of torque determination methods.*
- *Evaluation of the students.*

### **Section 4. Clinical applications.**

- *Construction of a free body diagram.*
- *Analysis of steps to solve biophysics problems.*
- *Demonstration of exercises - systems in balance.*
- *Analysis of the articular reaction force and its clinical significance.*
- *Evaluation of the students.*

### **Section 5. Familiarity in the laboratory with the human skeleton.**

- *Analysis of the forces applied to the bone and its function in practice*
- *Clinical applications according to Wolff's law.*
- *Evaluation of the students.*

### **Section 6. Laboratory analysis of heat application.**

- *Practical applications in heat transfer methods - examples of electrophysical modalities applications.*
- *Therapeutic indications based on their biophysical characteristics.*
- *Evaluation of the students.*

### **Section 7. Analysis and Clinical Applications.**

- *Neuromuscular electrical stimulation and transcutaneous electrical nerve stimulation.*
- *Evaluation of the students.*

### **Section 8. Procedure for the use of cryotherapy and heat therapy in the laboratory.**

- *Examples of applications of electrophysical modalities in clinical cases.*
- *Evaluation of the students.*

### **Section 9. Ultrasound application - diagnostic and therapeutic.**

- *Clinical applications.*
- *Solving clinical problems.*
- *Indications for therapeutic ultrasound.*
- *Evaluation of the students.*

### **Section 10. Clinical applications of laser systems.**

- *Clinical applications.*
- *Solving clinical problems.*
- *Indications of LLLT uses.*
- *Evaluation of the students.*

### **Section 11. Practical applications of lasers in medicine and physiotherapy.**

- *Safety analysis of their use and methods of radiation protection.*
- *Operation of laser systems in practice.*
- *Evaluation of the students.*

### **Section 12. Examples of the use of electromagnetic radiation.**

- *The emission of electromagnetic energy in the form of waves (electromagnetic waves, electrical diathermy).*
- *Clinical applications and clinical problem solving.*
- *Combined use of electrophysical modalities based on their biophysical characteristics.*
- *Evaluation of the students.*

### **Section 13. Clinical application of hydrotherapy in the context of rehabilitation.**

- *The effects of water emphasizing its biophysical properties.*
- *Evaluation of the students.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p><i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i></p> <p><i>Laboratory part</i></p> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration using models and images of organs and systems of the human body.</i></li> <li>• <i>Work in small groups.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Presentations of the students.</i></li> </ul> <p><i>Learning process support through the electronic platform e-class, usage of PC.</i></p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory part</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>23 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>75 hours (3 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</i></p>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

##### Greek bibliography:

1. Herman, I. (2009). *Φυσική του ανθρωπίνου σώματος*. Αθήνα: Εκδόσεις Πασχαλίδης.
2. Freedman, R. A., Ruskell, T. G., Kesten, P. R., Tauck, D. L. (2019). *Βασικές Αρχές Φυσικής στις Επιστήμες Υγείας*. Broken Hill.
3. Τζαφλίδου, Μ. (2010). *Ιατρική Φυσική, Βιοηλεκτρισμός, Οπτική, Θερμότητα-Ψύχος*. Αθήνα: Εκδόσεις Gutenberg.
4. Γεωργίου, Ε. (2008). *Ιατρική Φυσική*. Αθήνα: Εκδόσεις Π. Χ. Πασχαλίδης.
5. Προυκάκης, Χ. (2004). *Ιατρική Φυσική, Τόμοι Α', Β' και Γ'*. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α. Ε.
6. Σιανούδης, Ι. (2008). *Βιοφυσική: Θέματα Ιατρικής Φυσικής*. Αθήνα: Εκδόσεις Λύχνος.
7. Ψαράκου, Κ., et al. (2010). *Ιατρική Φυσική, Τόμος 2ος*. Θεσσαλονίκη: Εκδόσεις University Press.
8. Belanger A. (2021) *Θεραπευτικά ηλεκτροφυσικά μέσα. Βιοφυσική και εφαρμογή τους*. Εκδόσεις Κωνσταντάρας.
9. Cameron, J. R, Skofronick, J. D., & Grant, R. M. (2002). *Φυσική του Ανθρώπινου Σώματος*. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε..
10. Davidovits, D. (2013). *Η Φυσική στη Βιολογία και την Ιατρική*. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ.
11. Young, H. D. & Freedman, R. A. (2010). *Πανεπιστημιακή Φυσική, Τόμοι Α', Β', Γ'*. Αθήνα: Εκδόσεις Παπαζήση.

## 1.1.4 CLINICAL KINESIOLOGY I

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	<b>1<sup>st</sup></b>
<b>COURSE TITLE</b>	<b>CLINICAL KINESIOLOGY I</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
<b>LECTURES</b>		<b>3</b>	<b>6</b>
<b>LABORATORY EXERCISE</b>		<b>2</b>	
<b>COURSE TYPE</b>	<b>SPECIAL BACKGROUND</b>		
<b>PREREQUISITE COURSES:</b>	<b>NO</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2412/">https://eclass.uop.gr/courses/2412/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. analyzes the normal and pathological human movement,</li> <li>2. describes the neuromuscular mechanisms that govern movement,</li> <li>3. identifies the muscular work performed, normal or pathological,</li> <li>4. describes the kinesiology &amp; pathokinesiology of the shoulder and shoulder girdle,</li> <li>5. make the movements requested of him or name the movements he observes,</li> <li>6. recognizes and uses relevant terminology,</li> <li>7. recognizes the influence of internal &amp; external factors on a specific movement that is performed and can modify the movement by achieving the desired changes (e.g., in muscle work) by managing internal &amp; external factors (e.g., lever change, change of position etc.),</li> <li>8. describes the process of recording range of motion &amp; muscle strength, and recognizes the pathological,</li> <li>9. recognizes - evaluates the physiological and pathological function of the structures of the Shoulder and the Shoulder Belt during the movement and to analyze it in detail,</li> </ol>

10. *palpates the shoulder tissues of the shoulder girdle and controls the muscular strength of the muscles that affect them.*

### General Competences

- *Search, analysis and synthesis of data and information, using the necessary technologies.*
- *Adaptation to new situations.*
- *Decision making.*
- *Autonomous work.*
- *Teamwork.*
- *Promoting free, creative, and inductive thinking.*
- *Work in an international environment.*
- *Work in an intercultural environment.*
- *Production of new research ideas.*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to Kinesiology.

- *Chronology. The philosophy of the necessity of the study of movement and its usefulness in physiotherapy. Basic principles. Levels & axes of motion. The human body and the external environment.*
- *Basic principles of engineering: force, torque, friction, gravity, levers, force pairs, muscle traction angle, center of mass, momentum inaction, work, energy.*

#### Section 2. The Human Movement.

- *Types of bones & joints. Degrees of freedom of a joint. Basic principles of joint movement. Terminology & nomenclature of movements. Drive trajectory. The movements of the body parts and their range.*
- *Systems of forces in the human body. Composition and analysis of forces. Action reaction. Levers & levers of strength and resistance in the human body. Kinetic chains.*

#### Section 3. Muscle Function.

*-Introduction to the muscles (construction - types). Physiological & mechanical muscle advantage. Types of muscle contractions. length-force and force-velocity ratio. Adhesion angle. Basic principles of muscle strength control. Pairs of muscle forces in the human body and their role.*

#### Section 4. Neuromuscular Control and Coordination.

- *Neurophysiological basis of human movement. Central & peripheral nervous system. Proprioceptive receptors. Kinetic unit. Muscle tone. Voluntary & reflex movement.*
- *The role of muscles and the coordination of the muscular system. Monoarticular - biarticular - polyarticular muscles. Agonists, antagonists, competitors, accomplices, neutralizers & stabilizers muscles.*
- *Introduction to pathological neuromuscular control and coordination, and study of their manifestation in human movement.*

#### Section 5. The Impact of External Forces on Human Movement.

- *Definition and types of external forces. Principle of energy saving and methods of using gravity for this purpose in human movement and functionality. Philosophy of human construction to deal with external forces. Adaptations of the human body to stress and injury. The protective role of muscles.*
- *Movement and natural environment: earth traction, air resistance, effect of the liquid element, external resistance, etc. Movement and external objects: push & pull, throw, boredom, kick, than impact, friction, suspension & support.*

#### Section 6. Kinesiological Motion Analysis.

- *Methodology of kinesiological analysis of human movement. Individual division of the movement into stages. Identification of the factors that affect movement and muscle contraction. Differences in open and closed kinetic chains. Kinesiological analysis of daily activities.*

### **Section 7. Principles of Kinesiology and Pathokinesiology of the Upper and Lower Limb.**

- *Upper extremity: Introduction - osteology, muscle groups, functionality. The role of the upper extremity. Types of musculoskeletal dysfunction of the upper limb.*
- *Lower extremity: Introduction - osteology, muscle groups, functionality. The role of the lower limb. Types of musculoskeletal dysfunction of the lower extremity.*
- *Differences and similarities of upper and lower extremities.*

### **Section 8. Principles of Kinesiology of the Spine and Pelvic girdle.**

- *Spine: Introduction - osteology, muscle groups, functionality. The role of the cervical, thoracic & lumbar spine in posture and movement. Similarities & differences of the parts of the spine. Types of musculoskeletal dysfunction of the various parts of the spine.*
- *Pelvic girdle: Introduction - osteology, muscle groups, functionality. Pelvic movements, lumbar-pelvic rhythm. Kinesiological study of the trunk-lower extremity connection through the pelvis. Types of musculoskeletal dysfunction of the pelvic girdle.*

### **Section 9. Posture and Balance.**

- *Center of gravity, stability & balance of the human body. Balance control and factors that affect it. Muscular work in the upright position. Importance of normal posture. Support & factors related to standing posture. Adjustments of posture & balance to external factors.*
- *Pathological balance and factors that affect it. Causes of abnormal posture and its effect on gait, balance and functionality of the individual.*

### **Section 10. The Kinesiology and Pathokinesiology of Human Movement - Walking & Running.**

- *Historical background of the study of human gait and its usefulness. Definitions & phases - gait cycle. Anatomical and kinesiological analysis. Mechanical principles of gait. Macroscopic kinematic analysis: temporal & spatial parameters (temporal & spatial). Variations of gait. Run. Kinesiological and energy differences between stopping - walking - running.*
- *The pathological gait: categorizations, causes, kinesiological analysis of the pathological movement, kinematic adaptations in the pathology in order to optimize the movement with the minimum energy cost.*

### **Section 11. Kinesiology of the Shoulder girdle.**

- *Scapula and clavicle features. Scapula-thoracic "joint", acromioclavicular and sternoclavicular joint. The muscles of the area & their function. Agonists - antagonists - neutralizers muscles. The stabilizing role of the muscles & mechanisms of stability of the shoulder girdle. Muscular pairs of forces. The ligaments of the shoulder girdle joints and their role.*

### **Section 12. Kinesiology of the Shoulder. The Shoulder and the Shoulder girdle as a Kinesiological Set.**

- *Characteristics of the bone marrow. The humerus joint. The muscles of the area & their function. Agonists - antagonists - neutralizers muscles. The stabilizing role of the muscles & mechanisms of shoulder stability. Shoulder ligaments and their role. The role of the rotator cuff muscles of the shoulder.*
- *The synchronized shoulder-shoulder-key movement and its characteristics. Shoulder rhythm. The importance of diagonal movements in shoulder function. The movement at the level of the shoulder. Motion analysis in the shoulder-scapula-key complex as a whole. The role of stabilizing and neutralizing muscles in the area in reducing energy costs and achieving functionality.*

### **Section 13. Pathokinesiology of the Shoulder and Shoulder girdle.**

- *The pathological position of the shoulder and how it affects the movements of the shoulder. Identification and analysis of pathological movement patterns: Abnormal shoulder rhythm. The movement in pathology of the rotator cuff muscles of the shoulder. Movement in paralysis of muscles in the area.*



- *English terminology related to the subject of the course.*

#### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated in accordance with the study regulations of the Institution and the way of evaluation of the course mentioned below.*

### **B. Contents of the laboratory part of the course.**

#### **Section 1. Human Body & Environment Space.**

- *Positions that the body can take in environment space. The upright anatomical position. The levels of movement of the human body. The nomenclature of movements as a product of the upright anatomical position. Examples and applications from students.*
- *Evaluation of the students.*

#### **Section 2. Movements of the Upper Limb and Spine.**

- *Axes of movement and degrees of freedom and trajectory of each joint.*
- *Nomenclature of movements of the shoulder girdle, shoulder, elbow, forearm, wrist, hand and spine with practical application in daily movements by students.*
- *Evaluation of the students.*

#### **Section 3. Pelvic girdle and Lower extremity movements.**

- *Axes of movement and degrees of freedom of each joint. Nomenclature of pelvic, hip, knee, ankle and foot movements, with practical application in daily movements by students.*
- *Evaluation of the students.*

#### **Section 4. Muscle Contraction and Gravity.**

- *Practical application by students in the recognition of muscle contractions, under the influence of gravity, in daily movements.*
- *Evaluation of the students.*

#### **Section 5. Muscular Contraction and External Forces.**

- *Practical application by students in the recognition of muscle contractions, with external forces beyond gravity (e.g., exercise bands), in open and closed kinetic chains, and in various positions of the body in environment space.*
- *Evaluation of the students.*

#### **Section 6. Introduction to Motion Analysis.**

- *Laboratory demonstration of motion analysis with practical application by students, in various body positions in environment space.*
- *Evaluation of the students.*

#### **Section 7. Upper and Lower Limb Movement Analysis.**

- *Application of the upper and lower limb movement analysis by students, with different external forces, in open and closed kinetic chain and in different positions of the body in environment space.*
- *Evaluation of the students.*

### **Section 8. Pelvic girdle and Spine Movement Analysis.**

- *Application of pelvic girdle and spine movement analysis by students, with different external forces, in open and closed kinetic chain and in different positions of the body in environment space.*
- *Evaluation of the students.*

### **Section 9. Balance and Upright Posture.**

- *The base of support, body oscillation and balance: kinesiological ways of evaluating them with practical application by students.*
- *Evaluation of the normal upright posture with practical application by the students.*
- *Evaluation of the students.*

### **Section 10. Kinesiological Analysis of Gait.**

- *Analysis of gait movement with emphasis on muscle function during its cycle and practical application by students.*
- *Evaluation of the students.*

### **Section 11. Kinesiology of the Shoulder girdle.**

- *Detailed analysis of shoulder girdle movement, with practical application by students, with different external forces, in open and closed chains and in different positions of the body in environment space.*
- *Palpation of contractile and non-contractile structures and control of muscle strength of the muscles of the area, with practical application by students.*
- *Evaluation of the students.*

### **Section 12. Kinesiology of the Shoulder.**

- *Detailed analysis of shoulder and shoulder girdle movement as a whole, with practical application by students, with different external forces, in open and closed kinetic chain and in different positions of the body in environment space.*
- *Palpation of contractile and non-contractile structures and control of muscle strength of the muscles of the area, with practical application by students.*
- *Evaluation of the students.*

### **Section 13. Kinesiological Assessment of Shoulder and Shoulder girdle Pathology.**

- *Motion analysis and kinesiological evaluation of pathological movement patterns in shoulder and shoulder dysfunctions with practical application by students.*
- *Evaluation of the students.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<i>Theoretical part</i> <i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i>

	<p><i>Laboratory part</i></p> <p>The laboratory part of the course is taught using the following methods and tools:</p> <ul style="list-style-type: none"> <li>• <i>Demonstration using models and images of organs and systems of the human body.</i></li> <li>• <i>Work in small groups.</i></li> <li>• <i>Presentations of the students.</i></li> </ul> <p>Learning process support through the electronic platform e-class, usage of PC.</p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory part</i>	<i>26 hours</i>
	<i>Study of bibliography</i>	<i>85 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>150 hours (6 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

##### Greek bibliography:

1. Neumann, D. A. (2018). Κινησιολογία του μυοσκελετικού συστήματος. Συμμετρία.
2. Oatis, C. (2018). Κινησιολογία: Η μηχανική και παθομηχανική της ανθρώπινης κίνησης (I-II). Εκδόσεις Gotsis.
3. Hamilton, N., Weimar, W., & Luttgens, K. (2013). Κινησιολογία: επιστημονική βάση της ανθρώπινης κίνησης. Αθήνα: Επιστημονικές εκδόσεις Παρισιάνου.
4. Karandji, I.A. (2011). Η Λειτουργική Ανατομική των Αρθρώσεων. Broken Hill Publishers.
5. Tyldesley, B., & Grieve, J. I. (2018). Μύες, Νεύρα και Κίνηση. Αθήνα, Παρισιάνος.
6. Ryf, C., & Weymann, A. (2004). Εύρος κίνησης-ουδέτερη-0-μέθοδος της Α.Ο.: μέτρηση και τεκμηρίωση. Αθήνα: Ιατρικές Εκδόσεις Πασχαλίδης.
7. Frost, R. (2002). Applied kinesiology: a training manual and reference book of basic principles and practices. Berkeley: North Atlantic Books.

8. *Εποκα R. (2007). Αρχές εμβιομηχανικής και φυσιολογίας της κίνησης. Broken Hill Publishers.*
9. *Daniels & Worthingham (2000). Έλεγχος Μυϊκής Ισχύος. Salto.*
10. *Hochschild J. (2019) Λειτουργική Ανατομική του Κινητικού Συστήματος. Εκδόσεις Κωνσταντάρας.*
11. *Smith, L. K., Weiss, E. L., & Lehmkuhl, D. L. (2005). Brunnstrom's κλινική κινησιολογία. Αθήνα: Επιστημονικές εκδόσεις Παρισιάνος Α.Ε.*
12. *Δούκας, Ν. Μ. (2000). Κινησιολογία. Αθήνα: Λίτσας.*
13. *Πουλής Α. (1989). Κινησιολογία Ι. Οργανισμός Έκδοσης Διδακτικών Βιβλίων.*
14. *Σφετασιώρης, Δ. (2005). Κινησιολογία Άνω Ακρου. Αθήνα: D.K.S.*
15. *Σημειώσεις του διδάσκοντα και υλικό από το e-class του μαθήματος.*

**English bibliography:**

1. *Cutter, N.C., & Kevorkian, G. C. (1999). Handbook of manual muscle testing. New York: McGraw-Hill.*
2. *Galley, P.M., & Forster, A. L. (1987). Human Movement: An introductory text for Physiotherapy students. Churchill Livingstone.*
3. *Hoffman, S. J. (2005). Introduction to kinesiology: studying physical activity. Champaign: Human Kinetics.*
4. *Palastanga, N., Field, D., & Soames, R. (2000). Anatomy and human movement: structure and function. Oxford: Butterworth-Heinemann.*
5. *Rose, J., & Gamble, J. G. (2006). Human walking. Philadelphia: Lippincott Williams & Wilkins.*
6. *Trew, M., & Everett, T. (2005). Human movement: an introductory text. Edinburg: Elsevier/Churchill Livingstone.*
7. *Watkins, J. (1999). Structure and function of the musculoskeletal system. Champaign, Il.: Human Kinetics.*
8. *Wood, T. M., & Zhu, W. (2006). Measurement theory and practice in kinesiology. Champaign: Human Kinetics.*

## 1.1.5 PHYSIOLOGY

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	1 <sup>st</sup>
<b>COURSE TITLE</b>	PHYSIOLOGY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	6
LABORATORY EXERCISE		2	
<b>COURSE TYPE</b>	GENERAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2512/">https://eclass.uop.gr/courses/2512/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. describes the physiological mechanisms and functions of various systems of the human body such as the nervous, muscular, circulatory, respiratory, endocrine, immune, digestive, renal and reproductive systems;</li> <li>2. analyzes the functions of cells, tissues, organs and systems as well as how each of them participates in the functions of the organism as a whole;</li> <li>3. describes the methods of experimentation used by physiology, through individual or small group exercises;</li> <li>4. handles laboratory instruments (electrocardiograph, spirometer, microscope, sphygmomanometer) used in daily clinical and diagnostic practice, and on the other hand to apply classical methods and measurements that have as their object individual functions of the human body.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Search, analysis and synthesis of data and information, using the necessary technologies.</li> <li>• Adaptation to new situations.</li> <li>• Decision making.</li> <li>• Autonomous work.</li> </ul>

- *Teamwork.*
- *Promoting free, creative and inductive thinking.*
- *Work in an international environment.*
- *Work in an intercultural environment.*
- *Production of new research ideas.*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to the course of Human Physiology.

- *Purpose of human physiology.*
- *Cell community: cell types, tissues, organs and organ systems.*
- *Internal environment and homeostasis.*
- *Partitioning of body fluids.*

#### Section 2. Basic Principles of Cell Biology.

- *Structure and function of cells, cellular organelles.*
- *Genetic information and protein synthesis.*
- *Cell membrane and movement of molecules through membranes.*

#### Section 3. Blood Physiology.

- *Definition, functions, recommendation.*
- *Red blood cells: Reduction. Hemoglobin, structure and functions. Pathological compounds of hemoglobin. Hematocrit. Blood groups, Rhesus system.*
- *White blood cells: Production of white blood cells. Construction and function of polymorphonuclear cells, lymphocytes, mononuclear cells. Leukocyte type. Basic principles of immunity, cellular and chemical immunity.*
- *Platelets: Production and properties. Blood clotting. Hemostasis.*
- *Plasma: Composition and function. Plasma album functions.*

#### Section 4. Physiology of the Neuromuscular System I.

- *Nerve fiber structure, Neuroglial cells.*
- *Membrane potentials (ion distribution, resting potential, energy potential).*
- *Skeletal muscle organization and structure, neuromuscular contraction.*

#### Section 5. Physiology of the Neuromuscular System II.

- *Muscle contraction, motor unit, muscle tone, muscle tetany, muscle fatigue, skeletal muscle energy mechanism.*
- *Skeletal muscle types.*
- *Smooth muscles.*
- *Fascia.*

#### Section 6. Physiology of the Respiratory System I.

- *Construction of the respiratory system. Airways, dead space.*
- *The engineering and work of respiration. The respiratory center and the adjustment of the size of the breath.*
- *Gas diffusion and transport of O<sub>2</sub> from the lungs to the tissues, transport and elimination of CO<sub>2</sub>. Pulmonary circulation.*
- *Respiratory adaptation to special situations. Effects of muscle work, hypoxia, hypercapnia and hypocapnia.*

#### Section 7. Respiratory System Physiology II.

- *Respiratory adaptation to special situations. Ventilation response to muscle work, hypoxia, hypercapnia and hypocapnia.*
- *Acid-based Adjustment.*

### **Section 8. Physiology of the Cardiovascular System I.**

- *Heart, basic elements of anatomy and histology.*
- *Functional differences from skeletal muscle. Stimulation production and treatment system.*
- *Coronary circulation, nerves of the heart. Mechanics of cardiac function, acoustic phenomena that accompany cardiac function. Oxygen consumption and energy conversion in the heart muscle. Cardiac work, Regulation and adaptation of heart contraction. Electrocardiogram.*

### **Section 9. Physiology of the Cardiovascular System II.**

- *Arterial pulse, Blood pressure.*
- *Systemic and pulmonary circulation.*
- *Construction of the vessels and special characteristics of the vessels of different areas.*
- *Exchange of substances between capillaries and tissue fluid. Veins, venous circulation.*
- *Vascular centers. Traffic regulation.*
- *Lymph. Composition, movement, lymphatics, and lymph nodes.*

### **Section 10. Physiology of the Digestive System - Physiology of the Kidney**

- *Gastrointestinal tract structure, gastrointestinal organ functions.*
- *Digestion and absorption.*
- *Bile, pancreas, small intestine, large intestine.*
- *Structure of kidneys and urinary system, glomerular filtration, tubular reabsorption, tubular secretion, urination.*
- *Sodium, potassium and water balance adjustment.*

### **Section 11. Physiology of the Endocrine System**

- *What is a hormone, nature of hormones.*
- *Hormones of the anterior and posterior lobes of the pituitary gland.*
- *Thyroid hormones.*
- *Pancreatic hormones and diabetes.*
- *Hormones of the adrenal cortex.*

### **Section 12. Physiology of the Immune System**

- *Non-specific immune defense.*
- *Special immune defense.*
- *B and T lymphocyte functions, T cytotoxic, T helper, NK cells.*

### **Section 13. Physiology of Bones, Skin and Reproductive System**

- *Calcium and phosphates, vitamin D, deposition and absorption of calcium and phosphates in the bones, parathormone, calcitonin, bone diseases.*
- *Skin physiology.*
- *Reproductive physiology male, spermatogenesis, sperm transport.*
- *Reproductive physiology of the female, ovaries and ovulation, menstrual cycle, effects of estrogen and progesterone, pregnancy.*
- *English terminology related to the subject of the course.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated in accordance with the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**B. Contents of the laboratory part of the course.****Section 1. Introduction.**

- *Introduction to physiology and experimental methods.*
- *Demonstration of laboratory and equipment.*
- *Evaluation of the students.*

**Section 2. Microscope.**

- *Utility of the microscope. Microscope items. Basic parts of the microscope.*
- *Basic functions of the optical microscope. Microscopy methods.*
- *Evaluation of the students.*

**Section 3. Preparation of preparations and observation of eukaryotic cells.**

- *Making fresh preparation from onion inner film.*
- *Making a permanent preparation from the mucosa of the oral cavity.*
- *Making a permanent preparation from blood.*
- *Microscopy of all preparations.*
- *Evaluation of the students.*

**Section 4. Blood groups.**

- *ABO System, Rhesus System.*
- *Experimental procedure for finding blood group according to ABO and Rhesus.*
- *Evaluation of the students.*

**Section 5. Hematocrit and Erythrocyte Sedimentation Rate.**

- *Experimental procedure for finding hematocrit and erythrocyte sedimentation rate.*
- *Evaluation of the students.*

**Section 6. Blood Pressure.**

- *Blood circulation. Relationship between pressure, flow and resistance.*
- *Experimental procedure for measuring blood pressure.*
- *Evaluation of the students.*

**Section 7. Electrocardiogram I.**

- *System of Production and treatment of cardiac stimulation.*
- *Frontal and horizontal abductions.*
- *Evaluation of the students.*

**Section 8. Electrocardiogram II**

- *Receiving an electrocardiogram. Interpretation of basic items.*
- *Evaluation of the students.*

**Section 9. Myotatic reflexes.**

- *Functional organization of the central nervous system.*
- *Experimental exercise of myotatic reflexes.*
- *Evaluation of the students.*



**Section 10. Skeletal muscle tissue I.**

- *Experimental exercise of muscle contraction.*
- *Evaluation of the students.*

**Section 11. Skeletal muscle tissue II.**

- *Experimental exercise of muscle tetany and muscle cramps.*
- *Evaluation of the students.*

**Section 12. Engelmann heart suspension and study of its function.**

- *Automation of the heart muscle. Engelman Experimental Heart Suspension Exercise.*
- *Evaluation of the students.*

**Section 13. Respiratory function. Spirometry.**

- *The lungs and their function. Inhalation and exhalation. Lung tumors and capacities. Basic principles of spirometry. Experimental spirometry exercise.*
- *Evaluation of the students.*

**Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**TEACHING and LEARNING METHODS - EVALUATION**

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p><i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i></p> <p><i>Laboratory part</i></p> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration using models and images of organs and systems of the human body.</i></li> <li>• <i>Work in small groups.</i></li> <li>• <i>Presentations of the students.</i></li> </ul> <p><i>Learning process support through the electronic platform e-class, usage of PC.</i></p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>

	Laboratory part	26 hours
	Study of bibliography	85 hours
	Course total (25 hours workload per credit unit)	150 hours (6 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

## ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

### Greek bibliography:

1. Silverthorn, D. U. (2019). Φυσιολογία του Ανθρώπου. Broken Hill Publishers.
2. Costanzo, L. (2012). Φυσιολογία. Εκδ. Λαγός.
3. Barret, K. E., Barman, S. M., Boitano, S., & Brooks, H. L. (2014). Ganong's Ιατρική Φυσιολογία. (2η έκδοση). Εκδόσεις Broken Hill.
4. Vander, A., Sherman, J., Luciano, D. (2011). Φυσιολογία του ανθρώπου: μηχανισμοί της λειτουργίας του οργανισμού. Broken Hill Publishers.
5. Guyton, A. C., & Hall, J. A. (2007). Φυσιολογία του ανθρώπου και μηχανισμοί των νόσων. Επιστημονικές εκδόσεις Παρισιάνος.
6. McGeown, J. G. (2008). Συνοπτική Φυσιολογία του ανθρώπου. Ιατρικές Εκδόσεις Πασχαλίδης.
7. Boron, F. W., & Boulραep, L.E. (2006). Ιατρική Φυσιολογία "Κυτταρική & Μοριακή Προσέγγιση", Τόμος I, II, III. Ιατρικές Εκδόσεις Πασχαλίδης.
8. Koerper, Stanton (2018). BERNE AND LEVY Φυσιολογία. Εκδόσεις Παρισιάνος
9. Σμοκοβίτης, Α. (2004). Φυσιολογία, Εκδοτικός Οίκος Αδελφών Κυριακίδη.
10. Πλέσσα, Σ. (2010). Φυσιολογία του Ανθρώπου. Εκδόσεις Πλέσσα.
11. Πανουτσόπουλος Γ. (2020) Φυσιολογία του Ανθρώπου για Επιστήμες Υγείας. Εκδόσεις Δίσιγμα.

## 1.2 2<sup>nd</sup> SEMESTER

### 1.2.1 CLINICAL BIOMECHANICS

SCHOOL	SCHOOL OF HEALTH SCIENCES
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<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	<b>CLINICAL BIOMECHANICS</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
	<b>LECTURES</b>	3	6
	<b>LABORATORY EXERCISE</b>	2	
<b>COURSE TYPE</b>	<b>SPECIAL BACKGROUND</b>		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2623/">https://eclass.uop.gr/courses/2623/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. describes the function of the human body through the principles of engineering,</li> <li>2. analyzes and interprets the effect of exogenous and endogenous loads on tissues and systems,</li> <li>3. describes the effect of loading and the mechanical properties of the individual articular structures of the human body and the tissues associated with them, as well as their mechanisms of injury,</li> <li>4. analyzes biomechanical techniques, through which human activity is evaluated,</li> <li>5. describes the mechanics of orthopedic internal osteosynthesis,</li> <li>6. recognizes the necessary equipment for laboratory biomechanical evaluation,</li> <li>7. uses the basic laboratory equipment of the human movement and activity assessment laboratory for the biomechanical analysis of human activities, muscle strength, upright posture and balance,</li> <li>8. separates the normal from the pathological conditions through the processing and analysis of the results collected from this equipment.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Search, analysis and synthesis of data and information, using the necessary technologies.</li> <li>• Adaptation to new situations.</li> <li>• Production of new research ideas.</li> <li>• Promoting free, creative and inductive thinking.</li> </ul>

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Strength of Biological Materials-Basic Principles.

- *Fundamental concepts of material strength. Load types: compressive, tensile, shear, rotary, bending, composite. Physical quantities characterizing the properties of materials: stress, strain, young modulus, shear modulus, poisson's ratio. Elastic and plastic deformation. Stress-strain diagrams: yield points, break points, elasticity, plasticity. Isotropic, anisotropic and orthotropic materials.*

#### Section 2. Viscoelasticity.

- *Viscoelasticity and its characteristics: lag, speed dependence, time dependence and heat dependence. Stress to time and strain to time diagrams of viscoelastic materials. Load relaxation and creep. Biologically viscoelastic materials.*

#### Section 3. Kinetics and Mechanical Properties of Tissues.

- *Definition, basic principles. The concept of load. Internal & external forces in the human body. Intra-articular and extra-articular loads. Instruments and methods for measuring loads in the human body. Validity and reliability of the instruments.*
- *Mechanical properties of bone, cartilage, ligament, tendon and muscle. Bone behavior during compression, tension and shear. The behavior of cartilage during compression and conversion of compressive loads into tensile. The behavior of the ligament, tendon and muscle during tension.*

#### Section 4. Stress of Biological Materials & Injuries.

- *Limit of bone fracture during their mechanical stress in compressive, tensile, shear, bending, rotational and complex load. Limit of fracture of cartilage during compression, and of ligaments, tendons and muscles during stretching. Fatigue - mechanical fatigue of biological materials from repeated loading. The effect of type and speed of muscle contraction on muscle injury. The effect of aging and pathology on the mechanical properties of biological materials. Properties of nerve tissue and skin.*

#### Section 5. Evaluation of Muscle Power-Isokinetic.

- *Methods and instruments for measuring muscle strength. Validity and reliability. Isokinetic: principles, indications and contraindications. Isokinetic as a method of assessing muscle strength. Evaluation of pathologies through isokinetic.*

#### Section 6. Balance Assessment.

- *Center of gravity, base of support, center of pressure and oscillation. Methods and instruments for measuring balance. Validity and reliability. Evaluation of static and dynamic balance, as well as its pathological conditions.*

#### Section 7. Clinical Biomechanics of the Shoulder and Elbow.

- *Shoulder and elbow when charging. The role of external and muscular loads in the pathology of the joints. Charging as a causative agent of contractile and non-contractile tissue injury - injury mechanisms. Differentiation of load transport and absorption during pathology.*

#### Section 8. Clinical Biomechanics of the Wrist and Hand Limb.

- *The wrist and the extremities of the hand during loading. The role of external and muscular loads in the pathology of the joints. Loading as a causative agent of contractile and non-contractile tissue injury - injury mechanisms. Differentiation of load transport and absorption during pathology.*

### **Section 9. Clinical Spine Biomechanics.**

- *The spine during loading. The role of external and muscular loads in the pathology of the joints. Loading as a causative agent of contractile and non-contractile tissue injury - injury mechanisms. Differentiation of load transport and absorption during pathology.*

### **Section 10. Clinical Biomechanics of the Hip and Knee.**

- *The hip and knee during loading. The role of external and muscular loads in the pathology of the joints. Loading as a causative agent of contractile and non-contractile tissue injury - injury mechanisms. Differentiation of load transport and absorption during pathology. Loading during abnormal gait.*

### **Section 11. Clinical Biomechanics of the Ankle and Foot.**

- *The ankle and the foot during loading. The role of external and muscular loads in the pathology of the joints. Loading as a causative agent of contractile and non-contractile tissue injury - injury mechanisms. Differentiation of load transport and absorption during pathology. Loading during abnormal gait.*

### **Section 12. Biomechanical Principles of Internal Fixation Osteosynthesis (IFO) of Fractures.**

- *Biomechanical principles of internal fixation osteosynthesis of fractures. Stabilization in all axes, minimization of the use of orthopedic materials, achievement of mechanical stability, alignment and restoration of anatomy. Principles of mechanical compression and stabilization with screws, plates, intramedullary nails and tension bands.*

### **Section 13. Mechanical Properties of Orthopedic Materials and IFO Biomechanics of Fractures.**

- *Types of screws (cortical, cancellous, LHS, etc.) and their role in the compression of the lag surfaces (lag screw) and in the stabilization of a plate in the bone (plate screw). The types and five uses of bone plate. The types of intramedullary nails and their use. The types and use of tension band. Mechanical properties of orthopedic materials and biomechanics of internal fixation osteosynthesis.*
- *English terminology related to the subject of the course.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Laboratory Analysis of Force-Velocity Relationship: Concentric Contraction.**

- *Comparison of force production during concentric muscle contraction in different joints and at different angular velocities, using the isokinetic dynamometer and the participation of students. Recording the results, proving and consolidating the tachodynamic curve of the concentrated contraction.*
- *Evaluation of the students.*

### **Section 2. Laboratory Analysis of Force-Velocity Relationship: Eccentric Contraction.**

- *Comparison of force production during eccentric muscle contraction in different joints and at different angular velocities, using the isokinetic dynamometer and the participation of students. Recording of the results, proof and consolidation of the tachodynamic curve of the eccentric contraction.*
- *Evaluation of the students.*

**Section 3. Instruments for measuring the Load of the Human Body.**

- *Demonstration of the instruments for measuring the load of the human body. Advantages and disadvantages of each instrument. Participation and familiarization of students with their instruments and software.*
- *Evaluation of the students.*

**Section 4. The Loading of the Human Body during Walking and Running.**

- *Recording of walking on the dynamometer with the participation of students. Analysis of the results and diagrams of the loads exerted on the body during walking. Running test.*
- *Evaluation of the students.*

**Section 5. The Loading of the Human Body during Pathological Walking.**

- *Recording of pathological gait simulations with the participation of students. Analysis of the results and diagrams of the loads exerted on the body and comparison with the normal one.*
- *Evaluation of the students.*

**Section 6. The Loading of the Human Body during the Jump.**

- *Recording of an on-site jump on the dynamometer and at different heights with the participation of students. Analysis of the results and diagrams of the loads exerted on the body during the jump.*
- *Evaluation of the students.*

**Section 7. Muscular Strength Measuring Instruments.**

- *Demonstration of instruments for measuring muscle strength. Advantages and disadvantages of each instrument. Participation and familiarization of students with their instruments and software.*
- *Evaluation of the students.*

**Section 8. Isokinetic Evaluation of Muscle Power during Concentric Contraction.**

- *Recording of the muscular power of the concentric contraction, in different joints and in different angular velocities, with the use of isokinetic dynamometer and with the participation of the students. Analysis of results and charts. Isokinetic evaluation of the knee flexion-extension and internal-external rotators muscles ratio to detect muscle imbalances and predict injury.*
- *Evaluation of the students.*

**Section 9. Isokinetic Assessment of Muscle Power during Eccentric Contraction.**

- *Recording of the muscular power of the eccentric contraction, in different joints and in different angular velocities, with the use of isokinetic dynamometer and with the participation of the students. Analysis of results and charts. Evaluation of neuromuscular control during eccentric muscle contraction.*
- *Evaluation of the students.*

**Section 10. Clinical Biomechanics of the Upright Posture.**

- *Methods and techniques for evaluating the correct and pathological posture with the participation of students. Analysis of results.*
- *Evaluation of the students.*

**Section 11. Balance Measuring Instruments.**

- *Demonstration of instruments for measuring the balance of the human body. Advantages and disadvantages of each instrument. Participation and familiarization of students with the instruments and software.*
- *Evaluation of the students.*

### Section 12. Biomechanics of Balance: Static Balance.

- Recording the static balance in various tests, in the Balance Manager, with the participation of students. Analysis of results and charts. Simulation of abnormal static balance and comparison with normal.
- Evaluation of the students.

### Section 13. Biomechanics of Balance: Dynamic Balance.

- Recording the dynamic balance in various tests, in the Balance Manager, with the participation of students. Analysis of results and charts. Simulation of pathological dynamic balance and comparison with normal.
- Evaluation of the students.

### Section 14. Final evaluation of the students.

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <ul style="list-style-type: none"> <li>• Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</li> <li>• Discussion in the classroom and feedback.</li> <li>• Work in small groups or individually.</li> <li>• Student presentations.</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</li> <li>• Visiting speakers.</li> </ul> <p><i>Laboratory part</i></p> <p>The laboratory part of the course is taught using the following methods and tools:</p> <ul style="list-style-type: none"> <li>• Presentation of the topic being processed by the teacher, using as a model a student. Then the students in pairs, study and analyze the problem under teacher supervision.</li> <li>• Use of laboratory equipment for a better understanding of the subject (force plates, Isokinetic dynamometer, handheld dynamometers, special mirrors to control in order to correct the upright posture, height meter, weight scales and angle meters, etc.).</li> </ul>	
<b>TEACHING METHODS</b>	<i>Activity</i>	<i>Semester workload</i>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory part</i>	<i>26 hours</i>
	<i>Study of bibliography</i>	<i>85 hours</i>

	Course total (25 hours workload per credit unit)	150 hours (6 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

##### Greek bibliography:

1. Baumann, W. Βασικές αρχές της βιομηχανικής των αθλητικών κινήσεων. Θεσσαλονίκη: Salto, 1996.
2. Enoka, R.G. Αρχές εμβιομηχανικής και φυσιολογίας της κίνησης. Αθήνα, Πασχαλίδης, 2007.
3. Hall, S.J. Εμβιομηχανική. Επιστημονικές Εκδόσεις Παρισιάνου, Αθήνα, 2005.
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6. Richards J. Κλινική Εμβιομηχανική, Broken Hill Publishers Ltd., 2021.

##### English bibliography:

1. Adrian, M.J., Cooper, J.M. Biomechanics of human movement. Madison: WCB Brown & Benchmark Publishers, 1995.
2. Allard, P., Stokes, I.A.F., Blanchi, J.P. Three-dimensional analysis of human movement. Champaign: Human Kinetics, 1995.
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8. Low, J., Reed, A. Basic biomechanics explained. Oxford: Butterworth-Heinemann, 1996.
9. Martin, R.B., Burr, D.B., Sharkey, N.A. Skeletal tissue mechanics. New York: Springer, 2004.
10. McGinnis, Peter Merton. Biomechanics of sport and exercise. Champaign: Human Kinetics, 1999.
11. Nigg, B.M., MacIntosh, B.R., Mester, J. Biomechanics and biology of movement. Champaign, Ill.: Human Kinetics, 2000.
12. Nordin, M., Frankel, V.H. Basic biomechanics of the musculoskeletal system. Philadelphia: Lippincott Williams & Wilkins, 2001.
13. Ozkaya, N., Nordin, M. Fundamentals of biomechanics: equilibrium, motion and deformation. New York: Springer, 1999.
14. Whiting, W.C., Zernicke, R.F. Biomechanics of musculoskeletal injury. Champaign: Human Kinetics, 1998.
15. Whittle, M.W. Gait analysis: an introduction. Oxford: Butterworth-Heinemann, 1996.
16. Winter, D.A. Biomechanics and motor control of human movement. Hoboken: Wiley, 2005.
17. Zatsiorsky, V.M. Kinetics of human motion. Champaign: Human Kinetics, 2002.
18. Thakur, A, J. Elements of Fracture Fixation. Elsevier, 2012.
19. Wiss, D. Master Techniques in Orthopaedic Surgery: Fractures. LWW, 2012.
20. Muller, M., E. et al. Manual of INTERNAL FIXATION. Springer, 2012.
21. Richards, J. Biomechanics in Clinic and Research. Elsevier Health Sciences, 2008.





## 1.2.2 CLINICAL KINESIOLOGY II

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	CLINICAL KINESIOLOGY II		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	6
LABORATORY EXERCISE		2	
<b>COURSE TYPE</b>	SPECIAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2622/">https://eclass.uop.gr/courses/2622/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. analyzes in detail the normal and pathological human movement,</li> <li>2. analyzes in detail the effect of internal &amp; external factors on normal and pathological movement,</li> <li>3. describes the neuromuscular mechanisms that govern movement and identifies in detail the muscular action required to achieve it,</li> <li>4. analyzes in detail the movement and the influence of internal &amp; external factors on it,</li> <li>5. modifies the movement in the desired direction,</li> <li>6. describes the process of recording range of motion &amp; muscle strength, and recognizes the pathological,</li> <li>7. recognizes - evaluates the normal and pathological function of musculoskeletal structures during movement and analyzes it in detail,</li> <li>8. performs palpation of the tissues of the study area and control of the muscular strength of the muscles that concern it.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Search, analysis and synthesis of data and information, using the necessary technologies.</li> </ul>

- *Adaptation to new situations.*
- *Production of new research ideas.*
- *Promoting free, creative and inductive thinking.*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Kinesiology of the Elbow & Forearm.

- *Humeroulnar, Humeroradial and upper radioulnar joint. Bone geometry of joint surfaces and ligaments. Arthrokinematics and osteokinematics of the area.*
- *The muscles of the area & their function. Elbow muscle action in the shoulder. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Comparison of muscle strength and differences between pronation, supination, and middle position. Kinesiology of daily and sports activities. Pathokinesiology of the elbow and forearm and its effect on joint function.*

#### Section 2. Kinesiology of the Wrist.

- *Peripheral part of the radial bone, ulnar bone and wrist bones. Existing considerations for carpal bone alignment. Ligaments stability of the wrist. Arthrokinematics and osteokinematics of the area.*
- *The muscles of the area & their function. Wrist muscle action in the elbow. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Comparison of muscular forces in flexion, extension, radial and ulnar deviation. Optimal wrist positions to achieve hand limb functions. Kinesiology of daily and sports activities. Pathokinesiology of the wrist and its effect on the hand extremities and the functionality of the joint.*

#### Section 3. Kinesiology of the Hand I.

- *Metacarpals and phalanges of the fingers. Carpometacarpal, metacarpophalangeal and mesophalangeal joints of the fingers. Ligaments stability of the wrist. Bone geometry of articular surfaces. Arthrokinematics and osteokinematics of the area.*
- *The muscles of the area and their function. Finger muscle action on the wrist and elbow. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Comparison of muscle strength. The role of polyarticular muscles and pulleys in the functionality of the hand. Kinesiology of daily and sports activities. Pathokinesiology of the fingers. Common deformations and their effect on functionality.*

#### Section 4. Kinesiology of the Hand II.

- *Metacarpal and phalanges of the thumb. Carpometacarpal, metacarpophalangeal and mesophalangeal joints of the thumb. Ligaments stability of the thumb. Bone geometry of articular surfaces. Arthrokinematics and osteokinematics of the area.*
- *The muscles of the area and their function. Thumb muscle action on the wrist and elbow. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Peculiarities of the thumb. The hand as an instrument: Handles - Capture. The power of conception and factors that affect it. Kinesiology of daily and sports activities. Pathokinesiology of the thumb. Common deformations and their effect on functionality. Usual thumb movement deficits.*

#### Section 5. Kinesiology of the Orofacial Region.

- *The role of facial muscles and eyes. Temporomandibular joint & function. Peculiarities of the temporomandibular joint in relation to other joints. Temporomandibular joint muscles and their role in chewing and speech. Pathokinesiology of facial muscles. Pathokinesiology of the temple and effects on the functionality of the individual.*

#### Section 6. Kinesiology of the Cervical and Thoracic Spine.

- *Bones and joints, of the cervical and thoracic spine. Bone geometry, kinematics, arthrokinematics. Agonists - antagonists - neutralizers muscles. Peculiarities of cervical and thoracic spine. The muscles of the area and their function. Kinesiology of daily and sports activities. Pathokinesiology of cervical and thoracic spine. Usual deficits and their effect on functionality. Pathokinesiological association of shoulder-neck.*

### **Section 7. Kinesiology of the Lumbar Spine.**

- *Bones and joints, of the lumbar spine. Bone geometry, kinematics, arthrokinematics. Peculiarities of lumbar spine. The muscles of the area and their function. Agonists - antagonists - neutralizers muscles. The lumbar spine during the walk. Kinesiology of daily and sports activities. Pathokinesiology of lumbar spine. Usual deficits and their effect on functionality. Pathokinesiological study of lumbar spine deformities.*

### **Section 8. Kinesiology of the Hip.**

- *Pelvic bones & proximal femur. Hip joint. Ligament stability of the joint and their importance in the upright stance. Bone geometry of articular surfaces & normal alignment of the joint. Arthrokinematics and osteokinematics of the area. The muscles of the area & their function. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Hip muscle action when walking. Kinesiology of daily and sports activities.*
- *Pathokinesiology of the Hip. Effect of varus, valgus and abnormal torsion angle (anteversion, retroversion) on functionality. Usual deficits and their effect on functionality. The abnormal hip in gait.*

### **Section 9. Kinesiology of the Lumbar, Pelvis and Hip as a Whole.**

- *Lumbar-pelvic rhythm. Action of the lumbar muscles in the hip and vice versa, during functional activities. Lumbar stabilizations during hip movements and vice versa. Muscle action of the whole area in a closed kinetic chain. Kinesiology of daily and sports activities. Kinesiology of abnormal lumbar-pelvic rhythm. Usual deficits and their effect on the functionality of the area.*

### **Section 10. Kinesiology of the Knee and Patellofemoral Joint.**

- *Peripheral femoral portion, patella and proximal tibia and fibula. Tibiofemoral & patellofemoral joint. Joints and their role in joint stability. Bone geometry of joint surfaces & normal alignment of the joints. Arthrokinematics and osteokinematics of the area. Menisci and their role.*
- *The muscles of the area & their function. The role of the knee muscles in the hip joint. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Comparison of muscle strength. Knee muscle action during walking. Kinesiology of daily and sports activities. Pathokinesiology of the knee and patellofemoral joints. Usual deficits and their effect on the functionality of the area. The abnormal knee in walking.*

### **Section 11. Kinesiology of the Ankle and Posterior Foot.**

- *Peripheral part of the tibia and fibula, talus and calcaneus bones. Lower tibiofibular, ankle and subtalar joint. The role of ligaments in the stability of the ankle. Bone geometry of joint surfaces & normal alignment of the joints. Arthrokinematics and osteokinematics of the area.*
- *The muscles of the area & their function. The role of the ankle muscles in the knee joint. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Comparison of muscle strength. Action of the muscles of the area during walking. Kinesiology of daily and sports activities. Pathokinesiology of the posterior foot. Usual deficits and their effect on the functionality of the area. The abnormal posterior foot in gait.*

### **Section 12. Kinesiology of the Anterior Foot.**

- *The bones of the tarsus, metatarsals and phalanges of the fingers. Forefoot joints. Ligaments. Bone geometry of articular surfaces. Arthrokinematics and osteokinematics of the area. Overall movement of the foot limb. Foot arches. The muscles of the area & their function. The role of the muscles of the area in the posterior foot. Agonists - antagonists - neutralizers muscles. Stabilizing role of muscles & stability mechanisms. Comparison of muscle strength. Action of the leg muscles during walking. Kinesiology of daily and sports activities. Pathokinesiology of the anterior limb. Usual deficits and deformations and their effect on the functionality of the area. The abnormal forefoot in gait.*

### **Section 13. Kinesiology of Gait.**

- *Function of the muscles of the lower back, hip, knee and foot, cooperatively and as a whole, during walking. Analysis of pathological gait patterns.*
- *English terminology related to the subject of the course.*

## **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Kinesiology of the Elbow and Forearm.**

- *Observation-overview of the elbow and forearm area. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*
- *Evaluation of the students.*

### **Section 2. Kinesiology of the Wrist.**

- *Observation-overview of the wrist area. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*
- *Evaluation of the students.*

### **Section 3. Kinesiology of the Hand I.**

- *Observation-overview of the finger area. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*
- *Evaluation of the students.*

### **Section 4. Kinesiology of the Hand II.**

- *Observation-overview of the thumb. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Movement analysis with all kinds of contractions and handles of the hand limb, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*
- *Evaluation of the students.*

### **Section 5. Kinesiology of the Orofacial Region.**

- *Observation-overview of the facial area and the temples. Palpation of contractile and non-contractile structures in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces.*
- *Evaluation of the students.*

### **Section 6. Kinesiology of the Cervical and Thoracic Spine.**

- *Observation-overview of the area of the cervical and thoracic spine. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*
- *Evaluation of the students.*

### **Section 7. Kinesiology of the Lumbar Spine.**

- *Observation-overview of the lumbar spine area. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed*

*kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*

- *Evaluation of the students.*

### **Section 8. Kinesiology of the Hip.**

*Observation-overview of the Hip area. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*

- *Evaluation of the students.*

### **Section 9. Kinesiology of the Lumbar, Pelvis and Hip as a Whole.**

*Analysis of movements with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*

- *Evaluation of the students.*

### **Section 10. Kinesiology of the Knee and Patellofemoral Joint.**

*Observation-overview of the knee area and the patellofemoral joint. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*

- *Evaluation of the students.*

### **Section 11. Kinesiology of the Ankle and Posterior Foot.**

*Observation-overview of the ankle and posterior foot area. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*

- *Evaluation of the students.*

### **Section 12. Kinesiology of the Anterior Foot.**

*Observation-overview of the area of the anterior foot. Palpation of contractile and non-contractile structures in the area. Checking the muscle strength of the muscles in the area. Motion analysis with all types of contractions, in open and closed kinetic chain, with different external forces and use of special equipment. Examples of daily and sports activities with practical application by students.*

- *Evaluation of the students.*

### **Section 13. Kinesiology of Gait.**

*Motion analysis and kinesiological evaluation of physiological and pathological gait patterns with practical application by students.*

- *Evaluation of the students.*

### **Section 14. Final evaluation of the students.**

*The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

DELIVERY	FACE TO FACE	
<p><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b></p>	<p><i>Theoretical part</i></p> <ul style="list-style-type: none"> <li>• <i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i></li> <li>• <i>Discussion in the classroom and feedback.</i></li> <li>• <i>Work in small groups or individually.</i></li> <li>• <i>Student presentations.</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</i></li> <li>• <i>Visiting speakers.</i></li> </ul> <p><i>Laboratory part</i></p> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>Presentation of the topic being processed by the teacher, using as a model a student. Then the students in pairs, study and analyze the problem under teacher supervision.</i></li> <li>• <i>Use of laboratory equipment for a better understanding of the subject (human body models, balls, straps, scales, exercise bands, etc.).</i></li> </ul>	
<p><b>TEACHING METHODS</b></p>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory part</i>	<i>26 hours</i>
	<i>Study of bibliography</i>	<i>85 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>150 hours (6 ECTS)</i>
<p><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and laboratory part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>the final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</i></p>	

**ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

**Greek bibliography:**

1. Neumann, D., A. Κινησιολογία του Μυοσκελετικού Συστήματος. Συμμετρία, 2018.
2. Oatis, C. Κινησιολογία. Γκότσης Κ. & ΣΙΑ, 2018.
3. Karandji I.A. Η Λειτουργική Ανατομική των Αρθρώσεων. Broken Hill Publishers, 2011.
4. Epoka R. Αρχές εμβιομηχανικής και φυσιολογίας της κίνησης, Broken hill Publishers Ltd. 2007
5. Daniels & Worthingham. Έλεγχος Μυϊκής Ισχύος. Salto, 2000.
6. Hamilton, N., Luttgens, K. Κινησιολογία: επιστημονική βάση της ανθρώπινης κίνησης. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε, 2003.
7. Hislop H, Montogomery J. Έλεγχος της μυϊκής λειτουργικής ικανότητας. Εκδόσεις Παρισιάνου. 2001
8. Lippert L. Κλινική Κινησιολογία και Ανατομία. Εκδόσεις Κωνσταντάρας, 2022.
9. Ryf, C., Weymann, A. Εύρος κίνησης-ουδέτερη-0-μέθοδος της Α.Ο.: μέτρηση και τεκμηρίωση. Αθήνα: Ιατρικές Εκδόσεις Π.Χ.Πασχαλίδης, 2004.
10. Smith, L.K., Weiss, E.L., Lehmkuhl, D.L. Brunnstrom's κλινική κινησιολογία. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε, 2005.
11. Tyllesley, B., Grieve, J.I. Μύες, Νεύρα και Κίνηση. Αθήνα, Παρισιάνου, 1995.
12. Δούκας Ν.Μ. Κινησιολογία. Αθήνα: Λίτσας, 2000.
13. Πουλής Α. Κινησιολογία Ι. Οργανισμός έκδοσης διδακτικών βιβλίων, Αθήνα 1989.
14. Σφρατιώρης, Δ. Κινησιολογία Άνω Άκρου. Αθήνα: D.K.S., 2005.
15. Σημειώσεις του διδάσκοντα και υλικό από το e-class του μαθήματος.

**English bibliography:**

1. Cutter, N.C., Kevorkian, G.C. Handbook of manual muscle testing. New York: McGraw-Hill, 1999.
2. Frost, R. Applied kinesiology: a training manual and reference book of basic principles and practices. Berkeley: North Atlantic Books, 2002.
3. Galley P.M. & Forster A.L. Human Movement: An introductory text for Physiotherapy students. Churchill Livingstone, 1987.
4. Hoffman, S.J. Introduction to kinesiology: studying physical activity. Champaign: Human Kinetics, 2005.
5. Palastanga, N., Field, D., Soames, R. Anatomy and human movement: structure and function. Oxford: Butterworth-Heinemann, 2000.
6. Rose, J., Gamble, J.G. Human walking. Philadelphia: Lippincott Williams & Wilkins, 2006.
7. Trew, M., Everett, T. Human movement: an introductory text. Edinburgh: Elsevier / Churchill Livingstone, 2005.
8. Watkins, J. Structure and function of the musculoskeletal system. Champaign, Il.: Human Kinetics, 1999.
9. Wood, T.M., Zhu, W. Measurement theory and practice in kinesiology. Champaign: Human Kinetics, 2006.



## 1.2.3 NEUROPHYSIOLOGY

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	<b>NEUROPHYSIOLOGY</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
<b>LECTURES</b>		<b>3</b>	<b>4</b>
<b>COURSE TYPE</b>	<b>SPECIAL BACKGROUND</b>		
<b>PREREQUISITE COURSES:</b>	<b>NO</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2641/">https://eclass.uop.gr/courses/2641/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<b>The student will be able after the end of the course to:</b>
<ol style="list-style-type: none"> <li>1. analyzes the control mechanisms of human movement by the nervous system,</li> <li>2. recognizes the role of aesthetic inputs to the human body and to movement,</li> <li>3. describes the mechanisms of pain and aesthetics and is able to evaluate them,</li> <li>4. describes the pathophysiology of the nervous system.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Search, analysis and synthesis of data and information, using the necessary technologies.</li> <li>• Adaptation to new situations.</li> <li>• Production of new research ideas.</li> <li>• Promoting free, creative and inductive thinking.</li> </ul>

## SYLLABUS

## **A. Contents of the theoretical part of the course.**

### **Section 1. Physiology of the nervous system I.**

- *Elements of molecular neurophysiology, neural cell physiology, neurons and neuroglobulins, organization of the central and peripheral nervous system, information transmission, neural networks, neuroplasticity.*
- *The resting and energy potential of the membrane.*
- *Neurotransmission and transmission of information.*
- *Neurotransmitters - Neurotransmitters.*

### **Section 2. Physiology of the nervous system II.**

- *Inotropic receptors.*
- *Receptor action.*
- *The role of calcium (Ca ++).*
- *G proteins and protein kinases.*
- *Types of contracts.*

### **Section 3. Information transmission and neural networks.**

- *Introduction - Summation - Spatial summation - Deviation - Blocking effect - Suspension.*
- *Interconnected suspension. Inhibitory feedback. Enhancement.*
- *Other properties of synaptic activity.*

### **Section 4. Aesthetics I.**

- *Classification of receptors according to the mode of activity (Receptors, Thermoreceptors, Nociceptors, Electromagnetic receptors, Chemo receptors).*
- *Classification of receptors according to their structure (free nerve endings, Merkel's discs, Hair Follicle receptors, Meissner, Pacinian, Ruffini particles).*
- *Classification of receptors according to functional specialization (receptive, receptive, specific) etc.*
- *Adaptation or familiarization of receptacles.*

### **Section 5. Aesthetics II.**

- *Clinical examination and evaluation of aesthetics: the sensation of pain (hyperalgesia, or analgesia, hyperalgesia, numbness), touch (hypersensitivity or anesthesia, hyperpathy, stereo knowledge, the ability to separate two simultaneous tactile stimuli), the sense of temperature of vibrations (paleesthesia), the sense of movement.*
- *The importance for the Physiotherapist of the way of recording the finding.*

### **Section 6. Myotendinous receptors - the perception of sensory stimuli.**

- *The role of the joint receptors, the role of the muscle spindle and the Golgi tendon organs: Ways of activation, ways of suspending their function, effects.*

### **Section 6. Mobility I.**

- *Mobility (pyramidal, extrapyramidal, peripheral nervous system, cerebellum).*
- *Electrostimulation of neurons.*
- *Kinetic and aesthetic speeds of nerve conduction.*
- *Somatosensory evoked potentials.*

### **Section 8. Mobility II.**

- *How electrotherapy works and differentiation in nerve or muscle fiber stimulation.*
- *Neuromuscular contraction and muscle contraction.*
- *The motor unit - The articulation system.*

- *Regulation of the function of spinal motor neurons.*

### **Section 9. Kinetic control.**

- *Areas of the cerebral cortex and subcortical areas, which help control movement.*
- *Normal motor control and the role of aesthetic stimuli.*

### **Section 10. Kinetic learning - neuroplasticity.**

- *Changes in neural reorganization. Changes at the synaptic and cellular level.*
- *Forms of memory - physiological mechanism.*

### **Section 11. Pain. Temperature.**

- *Mechanisms of pain transmission and perception.*
- *The gate theory control of pain, the role of electrical stimulation, temperature change, evaluation scales, etc.*
- *Chronic pain. Pain inhibition. Inhibition mechanisms.*
- *Feeling of heat (hot - cold).*

### **Section 12. Electrostimulation.**

- *Electrostimulation of neurons.*
- *Kinetic and aesthetic speeds of nerve conduction.*
- *Somatosensory evoked potentials.*
- *Electrotherapy of peripheral nerve paralysis.*

### **Section 13. Neurological diagnostic tests and therapeutic modalities.**

- *Electroencephalography.*
- *Electroneuromyography.*
- *Transcutaneous electroanalgesia (TENS).*
- *Electrostimulation of the spine.*
- *Iontophoresis, electrotherapy.*
- *English terminology related to the subject of the course.*

### **Section 14. Final evaluation of the students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <ul style="list-style-type: none"> <li>• <i>Presentations using a blackboard, a transparency, a fixed projection system (overhead projector), video and television.</i></li> <li>• <i>Discussion in the classroom and feedback.</i></li> <li>• <i>Work in small groups or individually.</i></li> <li>• <i>Student presentations.</i></li> </ul>

	<ul style="list-style-type: none"> <li>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	39 hours
	Study of bibliography	61 hours
	Course total (25 hours workload per credit unit)	100 hours (4 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</p>	

### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

#### Greek bibliography:

1. Κάζης Α.: Κλινική Νευροφυσιολογία, Εκδόσεις University Studio Press, 1989.
2. Λογοθέτης, Ι. Μυλωνάς, Ι. Νευρολογία Λογοθέτη, 5η έκδοση. Εκδόσεις University Studio Press, 2016.
3. Φωτίου Φ. Ηλεκτροφυσιολογικές και οπτικές μέθοδοι διερεύνησης, Εκδόσεις Παρισιάνου, 2000.
4. Adams & Victor's, Νευρολογία, 2η Ελληνική έκδοση, Ιατρικές εκδόσεις Πασχαλίδη & Broken hill, 2004.
5. Barrett K. Ganong's Ιατρική Φυσιολογία. Broken Hill Publishers Ltd. 2011.
6. Guyton and Hall. Φυσιολογία του ανθρώπου και μηχανισμοί των νόσων, Επιστημονικές εκδόσεις Παρισιάνος, 2001.
7. Kandel E.R., Schwartz J.H. Βασικές Αρχές Νευροεπιστημών. Broken Hill Publishers Ltd. 2006.
8. Johnson E. Νευροανατομία. Ιατρικές εκδόσεις Κωνσταντάρας, Αθήνα 2012.

#### English bibliography:

1. Blankenship, J.E. NEUROPHYSIOLOGY: MOSBY'S PHYSIOLOGY MONOGRAPH, Mosby, 2002.
2. Blaustein M., Kao J., Matteson D. Cellular physiology and neurophysiology. 3rd edition, Elsevier 2019.
3. Carpenter R.H.S.: Neurophysiology – a conceptual approach, A Hodder Arnold Publication, 4th edition, 2012.
4. Gilman S. Newman S.W. MANTER AND GATZ'S ESSENTIALS OF CLINICAL NEUROANATOMY AND NEUROPHYSIOLOGY, 10th edition, Jaypee, 2009.
5. Greenstein B., Greenstein A. ATLAS OF NEUROSCIENCE: NEUROANATOMY AND NEUROPHYSIOLOGY, Color Theme Medical Publishers, 2000.
6. Head, TC. ESSENTIALS OF CLINICAL NEUROPHYSIOLOGY, Εκδόσεις Butterworth-Heinemann, 2002.
7. Misra U.K. Clinical Neurophysiology. 3rd edition, Elsevier India, 2014.

## 1.2.4 ORTHOPAEDICS

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	ORTHOPAEDICS		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		4	4
<b>COURSE TYPE</b>	GENERAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/PTH121/">https://eclass.uop.gr/courses/PTH121/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
After completion of the theoretical part of the course, students will be able to:
<ol style="list-style-type: none"> <li>1. recognize orthopedic diseases and injuries either clinically or in various imaging methods</li> <li>2. recognize the options of conservative or surgical treatment in any orthopedic condition or injury,</li> <li>3. evaluate the dysfunctions of the musculoskeletal system caused by orthopedic diseases and injuries.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Search for, analysis and synthesis of data and information, using the necessary technologies.</li> <li>• Adaptation to new situations.</li> <li>• Production of new research ideas.</li> <li>• Promotion of free, creative, and inductive thinking.</li> </ul>

## SYLLABUS

## A. Contents of the course.

### Section 1. Introduction to Orthopaedics

- *Introduction to Orthopaedics. History of Orthopaedics, terminology, and categorizations. Diagnosis – Prognosis – Treatment of the orthopedic patient. Materials (splints, etc.). Relationship between orthopedic and physiotherapist in the context of the overall care of the patient.*

### Section 2. Orthopaedic Diseases

- Osteoarthritis degenerative: osteochondritis, malformations\dystrophys\dystrophys\malformations, achondroplasia\incomplete osteogenesis, multiple exacerbations, malformations: a) epiphysical, b) metaphysical, c) diaphysical, chromosomal abnormalities, localized malformations.
- Autoimmune diseases-Rheumatism: Introduction to autoimmune diseases, classification, etiology, clinical picture, prognosis. Rheumatoid arthritis, ankylosing spondyloarthropathy, etc.

### Section 3. Soft Tissue Syndromes, Metabolic Disorders and Congenital Abnormalities

- Tendonitis, tenosynovitis, epytritis, folliculitis, periartthritis, etc.
- Metabolic disorders: endocrine, deformities, rickets, osteomalakiasis, hyperparathyroidism, osteoporosis.
- Congenital anomalies of members: supernumerary bones, missing bones, synostosis, Paget's disease, congenital dislocation, etc.

### Section 4. Paralytic Diseases, Tumors and Amputations

- Spina bifida, cerebral palsy, polio, obstetric paralysis, etc.
- Tumors: categorization, prognosis, treatment.
- Amputations: causes, levels, clinical treatment of adrome and patient, etc.

### Section 5. Musculoskeletal Injuries: Introduction

- Principles of fractures. Principles of treatment of fractures of the upper extremities, lower extremities, spine, pelvis. Causes - mechanism of injury. Classification. Complications (general, local, late, early). Therapeutic goals: cardioversion, retention, positional maintenance, healing. Major accident: place of accident, emergency clinics.

### Section 6. Peripheral Nerve Injuries

- Introduction to peripheral nerve injuries, types, mechanisms, healing, treatment.
- Cervical, brachial plexus, peripheral nerve injuries of the upper extremity, clinical picture, prognosis.
- Injuries of peripheral lower extremity nerves, clinical picture, prognosis.

### Section 7. Spine and Pelvis

- *Cervical spine: examination-evaluation. Torticollis, spondylosis, herniated intervertebral disc, cervical rib (S.A.E.Th.) etc. Thoracolumbar vertebral column: examination, inflammation (pyogenic-T. B. C.), scoliosis, kyphosis, ankylosing, K.D.M., spondylosis, spondylolisthesis, etc.*
- *Vertebral fractures, tooth fracture, SS fractures with quadriplegia or paraplegia, ligamentous injuries. Fractures of pelvis, pelvis, sacral-coccyx, acetabulum. Categorization and treatment. .*

### Section 8. Hip

- *Examination-evaluation. Irritable hip, Perthes, epiphysiolisthesis, osteoarthritis, etc.*
- *Hip dislocation, fractures of the central part of the femur (intrathylactic, extrafunctional), fractures of the diaphysis of the femur, fractures of the peripheral part of the femur. Categorization and treatment. Soft tissue injuries of the hip area.*

### Section 9. Knee

- *Examination-evaluation. Deformities: a) conjugation, b) valesogony, c) torticollis, d) hyperextension. Swelling: a) hymentitis, b) blood, c) hydrathrmus. Patella dislocation (kat'xen), chondromalacia, folliculitis in the patellar, osteochondritis, knee osteoarthritis, etc.*
- *Soft tissue injuries of the knee, patella dislocation (acid) and knee, patella fractures, fractures of the central part of the tibia / fibula. Categorization and treatment.*

### Section 10. Foot

- *Ankle: Examination-evaluation, torticollis, painful heel, osteochondritis, Achilles folliculitis, etc.*
- *Foot: Examination-evaluation, aponeurosis, flat feet, abdomen, valgus big toe, O.A. big toe, gout, metatarsalgia, hammer-dactyle, etc.*
- *Fractures of diaphysis tibia / fibula, fractures of the distal part of the tibia / fibula and hammers, soft tissue injuries of the ankle (sprains, rupture of Achilles, etc.) and of the foot, fractures of the foot. Categorization and treatment. Dislocations.*

### Section 11. Shoulder girdle

- *Shoulder-scapula diseases, myotenonitis, orogonothylacitis, syndromes, etc.*
- *Clavicle-scapula fractures. Fractures of the upper third of the humerus. Categorization and treatment. Dislocations. Soft tissue injuries of the shoulder girdle.*

### Section 12. Elbow

- *Elbow: examination, deformities, O.A., tendonitis, etc.*
- *Fractures of the lower third humerus. Fractures of upper and middle part of the grandstand and ulna. Categorization and treatment; dislocations.*
- *Soft elbow tissue injuries.*

### Section 13. Wrist, Hand

- *Injuries and ailments*
- *English terminology related to the subject of the course.*
- 

### Section 14. Final Assessment of students

- *The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.*

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>Many teaching techniques and means are included, including:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> <li>• Discussion in class and feedback.</li> <li>• Work in small groups or individual.</li> <li>• Student presentations.</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through an asynchronous training platform and e-mail).</li> <li>• Visiting speakers (following a decision of the sector).</li> </ul>	
TEACHING METHODS	Activity	Semester workload
	Lectures	52 hours
	Study of bibliography	48 hours

	<i>Course total (25 hours workload per credit unit)</i>	<i>100 hours (4 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation. For the theoretical part of the course:</i></p> <p><i>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10.</i></p>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Solomon L., Warwick D., Nayagam S. *Apley's Σύγχρονη Ορθοπαιδική και Τραυματολογία, Ιατρικές Εκδόσεις Π.Χ.Πασχαλίδη, 2010.*
2. Azar F., Canale T., Beaty J. *Campbell's Operative Orthopaedics, Elsevier, 2017.*
3. Skinner H. *Σύγχρονη Ορθοπαιδική-Διαγνωστική και Θεραπευτική, Ιατρικές Εκδόσεις Π.Χ.Πασχαλίδη, 2004.*
4. *Home Study Syllabus, Orthopaedic Knowledge Update, A.A.O.S., 1984-2005.*
5. Miller M.D., Thompson S.R. *Miller's Review Ορθοπαιδικής, Ιατρικές Εκδόσεις Κωνσταντάρας, 2017.*
6. Miller M., Hart A., MacKnight M.J. *Βασική Ορθοπαιδική. Broken Hill Publishers Ltd. 2020.*
7. Bulstrode C., et al. *Oxford Textbook of Orthopedics and Trauma, Oxford University Press, 2005.*
8. Καμμάς Α. *Εισαγωγή στην Ορθοπαιδική, Ιατρικές Εκδόσεις ΒΗΤΑ1999.*
9. Λαμπίρης Η. *Ορθοπαιδική και Τραυματολογία, Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2007.*
10. Συμεωνίδης Π. *Ορθοπαιδική. Κακώσεις και Παθήσεις του Μυοσκελετικού Συστήματος, University Studio Press, 1996.*
11. Χαρτοφυλακίδης Γ. *Θέματα Ορθοπαιδικής και Τραυματολογίας, Εκδόσεις Παρισιάνος, 1990.*
12. Dandy D.J., Edwards D.J. *Βασική Ορθοπαιδική και Τραυματολογία, Εκδόσεις Παρισιάνος, 2009.*



## 1.2.5 SOFT TISSUE MOBILIZATION TECHNIQUES &amp; MASSAGE

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	SOFT TISSUE MOBILIZATION TECHNIQUES & MASSAGE		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		2	6
CLINICAL PRACTICE		2	
<b>COURSE TYPE</b>	SPECIAL		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<b>After completion of the theoretical and clinical part of the course, students will be able to:</b>
<ol style="list-style-type: none"> <li>1) recognize the physiological and biological effects of the various massage techniques, and the principles of their proper application, as well as to be able to create and apply special therapeutic strategies concerning the individual or even combined application of classical massage (effleurage, kneading, frictions etc), transverse friction massage, connective tissue massage, trigger points massage, lymphatic system massage and eastern massage techniques.</li> <li>2) list the indications and contraindications depending on the disease entity and therapeutic objectives.</li> <li>3) identify the beneficial effect of massage manipulations on various systems and critically selects appropriate techniques to apply to conditions such as painful syndromes in general or locally, post-traumatic problems, upper and lower extremity circulation problems, respiratory problems, and psychogenic conditions.</li> <li>4) list the main criteria for evaluation, re-evaluation, and subsequent re-selection of the different techniques.</li> <li>5) develop the critical thinking required for the safe application of therapeutic massage in pathological conditions.</li> <li>6) perform all the manipulations of classical massage, transverse friction massage, connective tissue massage, trigger points massage, massage of the lymphatic system, can use oriental massage techniques (Shiatsu, reflexology) as well as relaxation techniques and training of proper posture of the human body.</li> </ol>

- 7) *safely designs and implement therapeutic massage strategies by selecting the appropriate methods and intervention techniques to treat specific problems.*

### General Competences

- *Search for, analysis and synthesis of data and information, using the necessary technologies.*
- *Adaptation to new situations.*
- *Production of new research ideas.*
- *Promotion of free, creative and inductive thinking*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to kneading techniques

- *History. Massage and physiotherapy. Types of massage. Swedish, connective tissue, Shiatsu, Reflexology, lymphatic, trigger points, transverse friction massage, other reflexive techniques. Aromatherapy, hypnosis, Alexander etc.*

#### Section 2. Basic principles of application of massage techniques

- *Principles of performing the kneading, the place, the equipment. Contact materials. The therapist, the patient, preparation, placement, duration, frequency, pressure, rhythm, direction of manipulations. The benefits of massage in relaxation, in stress, in improving health, as a therapeutic intervention, in improving physical condition.*

#### Section 3. Classical massage

- *Classical massage in rheumatoid diseases and arthritis, in chronic inflammations (myositis, folliculitis, tendonitis, tenosynovitis), in chronic pain (myositis, folliculitis, tendonitis, tenosynovitis), in chronic pain (back pain, cervical syndrome, etc.), in respiratory problems, in disorders of the functioning of the gastrointestinal system. Manipulations. Points of application.*

#### Section 4. Lymphatic massage

- *Introduction. Lymphatic vessels, lymph nodes, lymphatic organs; lymphatic edema; maintenance of lymphatic movement; Principles of lymphatic massage; process of lymphatic massage; Lymphatic massage techniques; combined application with other physiotherapeutic techniques; Active method; Passive method; Mechanical methods; Indications and contra-indications; therapeutic effects.*

#### Section 5. Massage of special transverse friction

- *Indications and contraindications. Effects. Technique.*

#### Section 6. Massage of subcutaneous connective tissue as a reflex method of treatment

- *Reflexive method of treatment. The importance of connective tissue bands. Examination to find zones of connective tissue. Visual realization. Palpation*

#### Section 7. Applications of subcutaneous connective tissue massage

- *Structure of treatment. Stages of treatment. Manipulations of the technique. Applications. Therapeutic reactions; the patient's feeling; skin reactions. Neuroreflexive reactions. Mechanism of action on heart, abnormalities of the gastrointestinal system, circulatory problems, etc. Applications in orthopedics, functional and organic abnormalities of the abdominal organs, neurological diseases*

#### Section 8 Reflexive trigger points massage

- *Pain trigger points. Points of appearance. Causes of activation. Classification. Symptomatology. Methods of diagnosis, examination, palpation; electromyography; deactivation through massage techniques; ischemic digital pressure; introduction to pain scales.*

## **Section 9. Oriental Massage Techniques**

- *Intoduction. Meridians. Primary meridians; secondary meridians. Meridian course. Symptoms appear due to their imbalance. Effects and indications. Basic principles of application. Reflexology, Shiatsu etc. The preparation for the technique. Manipulations. Basic principles for the execution of manipulations.*

## **Section 10. Results of massage techniques. Other techniques**

- *Mechanical effects. Physiological effects (skin, circulatory and lymphatic system, musculature, etc.). Relaxation techniques, correct posture (eg Alexander, hypnosis, etc.).*

## **Section 11. Criteria for the selection of a technique. Indications, massage contraindications**

- *Pain, muscle spasm, increased tissue tension, decreased elasticity, adhesions, reduced mobility, scar tissue, skin condition, decreased local circulation, decreased general circulation, decreased lymphatic circulation, decreased cellular metabolism, hypersensitivity, anxiety, kinesthetic picture, feeling of security*

## **Section 12. Reflexes - Neurological effects of massage techniques. Psychological effects of massage techniques**

- *Effects of massage techniques in diseases of the respiratory system, in disorders of the functioning of the endocrine glands, in gynecological problems, diseases related to the circulatory system, problems of the musculoskeletal system, diseases of the nervous system, inflammations and infections of the urinary system, in disorders of the digestive system, etc.*

## **Section 13. Massage in special populations (elderly, babies, athletes, etc.)**

- *Variations in the selection and application of massage techniques in special populations.*
- *English terminology related to the subject of the course.*

## **Section 14. Final Assessment of students**

- *The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Introduction to the principles of performing massage and applying therapeutic manipulations**

- *Principles of performing massage, the place, the equipment. Contact materials. The therapist. The patient. Preparation, placement, duration, frequency, pressure, rhythm, direction of the manipulations; irrationalities of classical massage: effleurage, frictions. Application to the trunk. Examples and applications by students. Students' assessment.*

### **Section 2. Classical massage application to the trunk**

- *Manipulations of classical massage: kneading, massage strokes, friction, gliding, percussion. Application to the trunk. Examples and applications by students. Students' assessment.*

### **Section 3. Classical massage in the individual parts of the body I**

- *Application of classical massage to the trunk and abdomen. Vibrations, electro-massage. Examples and applications from students. Students' assessment*

### **Section 4. Classical massage in the individual parts of the body II. Other techniques**

- *Application of classical massage in the neck, low back, etc. Relaxation techniques, correct posture. Examples and applications by students. Students' assessment.*

### **Section 5. Classical massage in the individual parts of the body III**

- *Application of classical massage to the upper extremity. Application of classical massage to the lower extremity; application of classical massage in special populations (e.g. athletes, children, the elderly). Examples and applications by students; Students' assessment.*

### **Section 6. Transverse friction massage. Reflexive massage trigger points**

- *Technique of transverse friction massage. Position of the patient and physiotherapist. Pressure. Duration of transverse friction massage. Applications of the technique in burns, muscle injuries, ligament injuries, tendonitis – tenosynovitis, etc. Examples and applications by students.*
- *Signs of pain trigger. Points of appearance. Methods of diagnosis, examination, palpation; deactivation through massage techniques; ischemic digital pressure; introduction to the scales of pain; examples and applications by students. Students' assessment*

### **Section 7. Application of lymphatic massage**

- *Technique of lymphatic massage. The manipulations of lymphatic massage. The process of lymphatic massage. Treatment of lymphatic edema. Examples and applications from students. Students' assessment*

### **Section 8. Massage of connective tissue I**

- *Connective tissue bands. Examination to find zones of subcutaneous connective tissue. Visual identification of the zones. Palpation of the bands of connective tissue; The importance of connective tissue bands. Manipulations of the technique. Positions of technique. Examples and applications from students. Students' assessment*

### **Section 9. Massage of connective tissue II**

- *Structure of treatment. Manipulations of the technique in the basic level of treatment. Examples and applications by students. Students' assessment*

### **Section 10. Massage of connective tissue III**

- *Manipulations of the technique in the first and second tiers of treatment. Recognition of reactions from the massage of subcutaneous connective tissue (patient's feeling, skin reactions, neuroreflexive reactions). Examples and applications from students. Clinical applications. Students' assessment*

### **Section 11. Application of reflexology techniques**

- *Place, treatment time. Technique. Examination of the legs. Relaxation techniques. Reactions from the application of reflexology. Applications of reflexology. Clinical applications. Students' assessment.*

### **Section 12. Other reflective techniques. Application of Shiatsu techniques I**

- *Other eastern reflexive techniques. Palpation of Meridians. The position of the therapist. The position of the patient. Prone position. Supine position. Oblique position. Sitting position. Preparation for the Shiatsu technique. Examples and applications from students. Students' assessment.*

### **Section 13. Application of Shiatsu techniques II**

- *The manipulations of the Shiatsu technique; principles and manipulations of other eastern techniques; examples and applications by the students. Clinical examples. Students' assessment.*

### Section 14. Final Assessment of students

- The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.

### TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>The teaching methods of the theoretical part of the course include many teaching methods and means among which:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> <li>• Class discussion and feedback</li> <li>• Working in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, online discussion through an asynchronous training platform and e-mail)</li> <li>• Guest speakers</li> </ul> <p>The laboratory part of the course is taught using the following methods and means:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of the methods and techniques of the course</li> <li>• Demonstration and application of laboratory equipment (feedback devices, EMG, equilibrium platform, plantarography, motion analysis, isokinesis, means of exercise, etc.)</li> <li>• Work in small groups</li> <li>• Student presentations</li> <li>• Analysis – presentation of clinical cases</li> <li>• Clinical application</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	26 hours
	Clinical Practice	26 hours
	Study of bibliography	98 hours
	Course total (25 hours workload per credit unit)	150 hours (6 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredit the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The</p>	

	<p><i>weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the workshop is from 0-10. The weight of the final tests in the laboratory part corresponds to 30% of the final score (weighting factor 0.3).</i></p>
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## ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

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### English bibliography:

1. Basmajian J.V. Manipulation, Traction and Massage, 3rd ed. Baltimore: Williams and Wilkins, 1985
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2. 2<sup>nd</sup> YEAR2.1 3<sup>rd</sup> SEMESTER

## 2.1.1 RESPIRATORY PHYSIOTHERAPY

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	3 <sup>rd</sup>
<b>COURSE TITLE</b>	RESPIRATORY PHYSIOTHERAPY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
	LECTURES	3	6
	LABORATORY	2	
	CLINICAL PRACTICE	1	
<b>COURSE TYPE</b>	SPECIAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	PATHOLOGY		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2520/">https://eclass.uop.gr/courses/2520/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. <i>evaluate and record nervous, pulmonary, and anatomical disorders in adults and children leading to respiratory dysfunction.</i></li> <li>2. <i>recognize the way respiratory physiotherapy intervenes in breathing disorders that occur in acute and chronic respiratory diseases, surgical procedures, neurological diseases, spinal injuries, prolonged bed rest.</i></li> <li>3. <i>set therapeutic goals for the improvement of the clinical picture and functionality of the respiratory patient in an acute stage and in the chronicity of his pathology.</i></li> <li>4. <i>re-evaluate the therapeutic intervention by recognizing the signs of improvement or deterioration of the clinical</i></li> </ol>

- picture of the patient.*
5. *set the therapeutic goals and plans the physiotherapeutic intervention in the improvement of pulmonary function, functionality, and quality of life of patients with chronic lung diseases.*
  6. *carry out the movements requested or to name the movements he observes.*
  7. *safely apply in practice special techniques and means of treatment (described in detail in the individual sections) for the treatment of clinical symptomatology in the inpatient and outpatient environment.*
  8. *evaluate and record all etiology disorders listed in the patient's history.*
  9. *organize a safe plan of therapeutic intervention.*
  10. *recognize by auscultation the pathological pulmonary sounds and determines the need of physiotherapeutic intervention.*

### General Competences

- *Search for, analyze and synthesize data and information, using the necessary technologies*
- *Adapting to new situations*
- *Decision-making*
- *Independent work*
- *Teamwork*
- *Promotion of free, creative, and inductive thinking*
- *Working in an international environment*
- *Working in an intercultural environment*
- *Generating new research ideas*
- *Adapting to new situations*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to physiotherapy of respiratory diseases of adults and children.

- *History. The development of respiratory physiotherapy today. Modern techniques and interventions in the clinical field and other levels of health care (home, private practice, primary care structures).*
- 

#### Section 2. Mechanisms of Physiology of Respiratory Function.

- *Iterative elements of functional anatomical of the respiratory system, kinesiological analysis of the respiratory muscles, the mechanics of breathing and neural volumes of breathing. Interpretation of pulmonary tumors and capacities.*
- 

#### Section 3. Mechanisms of Pathophysiology of Respiratory Function.

- *Pathophysiology of respiratory function and study of disorders leading to respiratory failure. Disturbances in acid-base balance and the clinical significance of existing changes.*
- 

#### Section 4. Physiotherapeutic assessment

- *Collection of subjective and objective data for the evaluation of the respiratory patient, laboratory findings and consideration of data for decision-making. Assessment of functional control of breathing by interpreting the findings of spirometry.*
- *Functional assessment of the respiratory patient during the acute and chronic phase, with other clinical and laboratory tests: ergospirometry, measurement of the strength of the respiratory muscles, running tests and other functional evaluation tests*
- 

#### Section 5. Physiotherapeutic Intervention

- *Principles of techniques and methods applied in respiratory physiotherapy. Presentation of their effectiveness in the clinical field for the improvement of pulmonary ventilation, functional capacity and endurance of the patient, tracheobronchial drainage.*
- *Evidence based effectiveness of the techniques applied in each respiratory condition (acute and/ or chronic)*
- 

#### Section 6. tracheobronchial drainage techniques

- *Physiological Mechanism of tracheobronchial drainage. Detailed reference to all tracheobronchial drainage techniques.*
- *Documentation and comparison of the effectiveness of these techniques*
-



### **Section 7. Physiotherapy in patients with obstructive type of respiratory disorder**

- *Physiotherapy in obstructive type diseases: chronic obstructive pulmonary disease, bronchial asthma, cystic fibrosis, pulmonary fibrosis.*
- *Therapeutic objectives, methods, and respiratory intervention techniques in the acute phase and chronicity.*
- 

### **Section 8. Physiotherapy in the muscle dysfunction of peripheral and respiratory muscles in patients with obstructive type of pulmonary disease**

- *Muscle atrophy, weakness, and dysfunction of the respiratory and skeletal muscles in CLD, cystic fibrosis, other lung diseases.*
- *Functional limitations in patients and their assessment.*
- 

### **Section 9. Physiotherapy in patients with restrictive type of respiratory disorder**

- *Physiotherapy in restrictive type diseases: diseases of the pleura, trunk deformities, spinal cord and spinal cord injuries with subsequent respiratory dysfunction*
- 

### **Section 10. Respiratory Physiotherapy in Chronic Neurological Diseases**

- *Limitations of respiratory function and dysfunction of the respiratory muscles in chronic neurological diseases*
- *Treatment of respiratory muscles atrophy in neurological diseases*
- 

### **Section 11. Preoperative and Postoperative Respiratory Physiotherapy**

- *Therapeutic goals and physiotherapeutic intervention in the preoperative and postoperative stage of abdominal and chest surgeries.*
- *Evaluation of respiratory failure and atelectasis.*
- *Oxygen therapy criteria.*
- 

### **Section 12. Other therapeutic interventions**

- *Oxygen therapy: oxygen administration systems. Criteria for the initiation and discontinuation of oxygen therapy. Oxygen therapy during physiotherapeutic intervention*
- *Moistening and Nebulization.*
- *Medication: categories of drugs that the physiotherapist needs to know for proper decision-making.*
- *Nutrition: importance of proper nutrition in the survival of chronic respiratory patients. Muscle cachexia and muscle weakness in respiratory diseases.*
- 

### **Section 13. Respiratory Physiotherapy in Newborns and Children**

- *Respiratory Physiotherapy in infants, children, and adolescents with acute and/or chronic respiratory diseases.*
- *Special features of the respiratory system in children differentiating physiotherapeutic approach.*
- *Programs for the education of parents and children for the treatment of chronic disease.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of Students**

- *The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Therapeutic goals of respiratory physiotherapy for adults and children.**

- *Distinction and application of main goals in respiratory physiotherapy.*
- *Intervention techniques according to each goal.*
- *Peculiarities in the management of respiratory diseases.*
- *Assessment of students.*
-

## **Section 2. Mechanical model of breathing - Palpation of the chest and Imaging of pulmonary lobes**

- *The mechanical model of breathing. Operations that develop rib cage diameters.*
- *intercostal spaces palpation, recording pulmonary lobes on the rib cage.*
- *Assessment of students.*
- 

## **Section 3. Diaphragmatic Respiration - Breathing Synchronization - breathing exerciser devices**

- *Application of diaphragmatic breathing (calm controlled abdominal breathing).*
- *Synchronization of respiratory movements of the chest and diaphragm.*
- *Application of breathing devices.*
- *Assessment of students.*
- 

## **Section 4. Pulmonary Auscultation**

- *Auscultation of pulmonary sounds. Presentation and use of laboratory equipment.*
- *Practice in the recognition of main pathological pulmonary sounds.*
- *Assessment of students.*
- 

## **Section 5. Bronchial Drainage (1)**

- *Drainage of right lung lobes in special positions with gravity.*
- *Demonstration of drainage positions and training in the application of manipulations (pressures, vibration, **πλήξεις**) to adults and children.*
- *Assessment of students.*
- 

## **Section 6. Bronchial Drainage (2)**

- *Drainage of left lung lobes in special positions with gravity.*
- *Demonstration of drainage positions and training in the application of manipulations (pressures, vibration **πλήξεις**). Learning to exercise coughing, differentiation between children and adults.*
- *Assessment of students.*
- 

## **Section 7. Bronchial Drainage (3)**

- *Demonstration and application of the active breathing cycle technique.*
- *Demonstration and application of autogenic drainage in cystic fibrosis patients.*
- *Demonstration and application of special rainy cleaning devices.*
- *Assessment of students.*
- 

## **Section 8. Knowledge consolidation\_ Presentation of complex problems**

- *Examples are presented and analyzed including data that the students have been taught in previous lectures and carry out in the form of a tutorial exercise.*
- *Assessment of students.*
- 

## **Section 9. Treatment of Dyspnea**

- *Demonstration of relaxation positions. Demonstration and application of breathing with half-closed lips.*
- *Reeducation of functional activities in a respiratory patient.*
- *Exercise of the respiratory muscles with special devices.*
- *Demonstration and use of devices by interpreting the results of the measurement.*
- *Assessment of students.*
- 

## **Section 10. Physiotherapeutic techniques before and after chest and abdomen surgeries**

- *Techniques of teaching breathing, mobilization in preoperative and postoperative stage.*
- *Assessment of students in the module.*
-

### **Section 11. Physiotherapeutic techniques in a patient with restrictive type of pulmonary diseases**

- Techniques of application in pleural effusion, pneumothorax, hydrothorax, etc. diseases of the pleura.
- Techniques of application in trunk and spine deformities.
- Assessment of students.

### **Section 12. Oxygen therapy**

- Demonstration and use of oxygen delivery systems.
- Assessment of students.
- 

### **Section 13. Suction**

- Demonstration of suction device. Application of the suction technique in an intubated and tracheostomized patient in the ICU.
- Assessment of students.
- 

### **Section 14. Final Assessment of students.**

- The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.

## **C. Contents of the clinical part of the course:**

### **Section 1. Clinical Practice in the ICU**

- Clinic in the Intensive Care Unit, Increased Care Unit.
- Assessment of students.
- 

### **Section 2. Clinical practicum in the Pulmonary Clinic \_ Acute Respiratory Disease (Part A)**

- Assessment of the clinical and laboratory findings of a hospitalized patient with acute respiratory disease or exacerbation of chronic respiratory disease: case study, clinical reasoning, therapeutic intervention.
- Assessment of respiratory failure through the study of blood gases and oxymetry. Selection of the appropriate oxygen therapy means (mask, nasal cannula)
- Assessment of atelectasis by considering chest X-rays, auscultation, and overview of the rib cage. Selection of the appropriate technique for improving pulmonary ventilation.
- Assessment of bronchial secretions considering the findings of auscultation and chest X-rays. Bronchial drainage: selection of the appropriate technique based on the findings of the assessment and the ability of the patient to cooperate. Bronchial drainage, humidifiers, and nebulization devices.
- Criteria for discontinuation of physiotherapeutic intervention
- Application of techniques based on selected therapeutic intervention.
- Assessment of students.
- 

### **Section 3. Clinical practice in the Pulmonary Clinic \_ Acute Respiratory Disease (Part B)**

- Assessment of the clinical and laboratory findings of a hospitalized patient with acute respiratory disease or exacerbation of chronic respiratory disease: case study, clinical reasoning, therapeutic intervention.
- Assessment of respiratory failure through the study of blood gases and oxymetry. Selection of the appropriate oxygen therapy means (mask, nasal cannula)
- Assessment of atelectasis by considering chest X-rays, auscultation, and overview of the rib cage. Selection of the appropriate technique for improving pulmonary ventilation.
- Assessment of bronchial secretions considering the findings of auscultation and chest X-rays. Bronchial drainage: selection of the appropriate technique based on the findings of the assessment and the ability of the patient to cooperate. Bronchial drainage, humidifiers, and nebulization devices.
- Criteria for discontinuation of physiotherapeutic intervention
- Application of techniques based on selected therapeutic intervention.
- Assessment of students

### **Section 4. Clinical practice at the Pulmonary Clinic \_ Chronic Respiratory Disease (Part A)**

- Assessment and physiotherapeutic intervention in a patient with chronic obstructive pulmonary disease. Selection of appropriate techniques for improving της δυναμικής υπεδιάτασης of the chest and πνευμονικού υποαερισμού. Selection of the appropriate bronchial drainage device during exacerbation if chronic use is necessary. Teaching to monitor exacerbation using the flowmeter. Education of the patient in diaphragmatic breathing and techniques of reducing dyspnea.
- Assessment and physiotherapeutic intervention in a patient with cystic fibrosis. Selection of appropriate techniques and devices of bronchial drainage and training for chronic use. Exercises for strengthening respiratory muscles.

- Assessment of the size of respiratory failure and physiotherapeutic intervention in a patient with diffuse pulmonary diseases.
- Assessment and physiotherapeutic intervention in adults suffering from asthma.
- Application of techniques of a selected therapeutic intervention in different clinical cases.
- Assessment of the students.

### **Section 5. Clinical practice at the Pulmonary Clinic \_ Chronic Respiratory Disease (Part B)**

- Assessment and physiotherapeutic intervention in a patient with chronic obstructive pulmonary disease. Selection of appropriate techniques for improving *της δυναμικής υπεδιάτασης* of the chest and *πνευμονικού υποαερισμού*. Selection of the appropriate bronchial drainage device during exacerbation if chronic use is necessary. Teaching to monitor exacerbation using the flowmeter. Education of the patient in diaphragmatic breathing and techniques of reducing dyspnea.
- Assessment and physiotherapeutic intervention in a patient with cystic fibrosis. Selection of appropriate techniques and devices of bronchial drainage and training for chronic use. Exercises for strengthening respiratory muscles.
- Assessment of the size of respiratory failure and physiotherapeutic intervention in a patient with diffuse pulmonary diseases.
- Assessment and physiotherapeutic intervention in adults suffering from asthma.
- Application of techniques of a selected therapeutic intervention in different clinical cases.
- Assessment of the students.

### **Section 6. Clinical practicum in the Pulmonary Practice**

- Monitoring of cases in pulmonary outpatient clinics. Involvement of the physiotherapist in the multidisciplinary team in asthma, chronic lung disease, smoking cessation, and cystic fibrosis clinics.
- Physiotherapeutic evaluation of cases that come for regular monitoring by doctors. Involvement in the process of informing, educating, and managing the symptomatology of patients.
- Prescribing the appropriate exercise program in order to improve the muscular strength of the skeletal and respiratory muscles and the function of the patient.
- Teaching the management of dyspnea with appropriate breathing techniques and relaxation positions.
- Provide written instructions, assess, and re-assess.
- Monitoring and involvement in the process of spirometry, diffusion, measurement of the strength of the respiratory muscles.
- Apply selected intervention.
- Assessment of students.

### **Section 7. Clinical practice in the Intensive Care Unit (Part A)**

- Physiotherapy in critically ill patients in the ICU: case evaluation, clinical reasoning, therapeutic intervention.
- Assessment of the clinical picture and laboratory findings of the patient. Assessment of the severity of respiratory failure.
- Application of techniques to improve pulmonary ventilation. Participation in the process of mechanical support of the patient's breathing and weaning, according to appropriate criteria.
- Exercise of the respiratory muscles to assist the release from mechanical breathing
- Continuous monitoring for evaluation of cardiopulmonary parameters.
- Application and adjustment of oxygen therapy devices: t-piece, venture mask, nasal cannula.
- Application of bronchial drainage techniques after considering the auscultation and radiological examination. Bronchial aspiration. Application of humidifiers and nebulizers.
- Application of diaphragmatic breathing, synchronization of respiratory movements and proper chest positioning for treating atelectasis.
- Proper placement of the patient to improve pulmonary ventilation and drainage of bronchial secretions.
- Progressive kinesiotherapy in bed (passive, assisted, exercise in individual parts of the body).
- Application of electromuscular irritation in patients with prolonged ICU stay and muscle atrophy.
- Progressive rise on a bed.
- Application of selected therapeutic techniques.
- Assessment of students.

### **Section 8. Clinical practice in the Intensive Care Unit (Part B)**

- Physiotherapy in critically ill patients in the ICU: case evaluation, clinical reasoning, therapeutic intervention.
- Assessment of the clinical picture and laboratory findings of the patient. Assessment of the severity of respiratory failure.
- Application of techniques to improve pulmonary ventilation. Participation in the process of mechanical support of the patient's breathing and weaning, according to appropriate criteria.
- Exercise of the respiratory muscles to assist the release from mechanical breathing
- Continuous monitoring for evaluation of cardiopulmonary parameters.
- Application and adjustment of oxygen therapy devices: t-piece, venture mask, nasal cannula.
- Application of bronchial drainage techniques after considering the auscultation and radiological examination. Bronchial aspiration. Application of humidifiers and nebulizers.
- Application of diaphragmatic breathing, synchronization of respiratory movements and proper chest positioning for treating atelectasis.
- Proper placement of the patient to improve pulmonary ventilation and drainage of bronchial secretions.

- Progressive kinesiotherapy in bed (passive, assisted, exercise in individual parts of the body).
- Application of electromuscular irritation in patients with prolonged ICU stay and muscle atrophy.
- Progressive rise on a bed.
- Application of selected therapeutic techniques.
- Assessment of students.

### **Section 9. Clinical Training in High Dependency Unit (HDU.)**

- Physiotherapy in patients in the HDU: case evaluation, clinical reasoning, therapeutic intervention.
- Continuous monitoring for evaluation of cardiopulmonary parameters.
- Application and adjustment of oxygen therapy devices: t-piece, venture mask, nasal cannula.
- Application of bronchial drainage techniques, after considering the auscultation and radiological examination.
- Bronchial aspiration. Application of humidifiers and nebulizers.
- Application of diaphragmatic breathing, synchronization of respiratory movements and displacement of the chest for a solution of atelectasis.
- Progressive kinesiotherapy in bed (assisted, active, resistance exercise for all muscle groups).
- Application of nervosa electromuscular irritation in patients with prolonged stay in the MAF and muscle atrophy.
- Progressive upright position. Educating balance in posture and walking. Assisted walking.
- Application of selected therapeutic techniques.
- Assessment of students.

### **Section 10. Clinical practice in the Surgical Wards - Upper and lower abdominal surgeries**

- Preoperative intervention and postoperative physiotherapy in patients in the surgical ward: case assessment, clinical reasoning, therapeutic intervention.
- Breathing exercises, proper postoperative placement positions to avoid complications, bed lifting and placement of the patient in a sitting and upright position.
- Kinesiotherapy for the prevention of postoperative complications.
- Postoperative assessment of the clinical picture and laboratory findings of the patient. Assessment of the severity of respiratory failure considering blood gases, oximetry, auscultation, and radiological examination.
- Application of techniques to improve pulmonary ventilation: diaphragmatic respiration, synchronization of respiratory movements, assistance of ventilation in the lung bases through upper extremity exercises. Use of breathing exercises.
- Application of bronchial drainage techniques. Application of the active cycle of breathing, humidifiers according to medical instructions.
- Kinesiotherapy in bed to avoid venous thrombosis
- Assisting sitting and upright position. Walking.
- Apply criteria based on appropriate scales for discontinuing physiotherapy intervention.
- Application of selected therapeutic techniques.
- Assessment of students.

### **Section 11. Clinical Practice in Field Tests**

- Assessment of the exercise capacity of chronic respiratory patients: ergospirometry, application of maximum and submaximal *δοκιμασίας παραγωγής έργου*, measurement of resistance to submaximal exercise intensity.
- Assessment of the functional capacity of patients with a) functional gait tests: six-minute walking test and b) implementation of appropriate and reliable functional activity tests.
- Application of tests.
- Assessment of students.

### **Section 12. Clinical practice in Pulmonary Rehabilitation Program (Part A)**

- Respiratory rehabilitation in patients with chronic respiratory diseases: chronic obstructive pulmonary disease, cystic fibrosis, bronchial asthma, pulmonary fibrosis, interstitial pulmonary diseases. Functional evaluation, breathing exercises, aerobic exercise and muscle strengthening, patient education.
- Assessment of the quality of life with specific and general questionnaires.
- Assessment of muscle strength of the respiratory and skeletal muscles.
- Design of a group therapeutic exercise program based on the results of patient's assessment.
- Educating the pattern of breathing and the management of symptoms of dyspnea.
- Educating the patient in the management of exacerbation symptoms.
- Long-term planning of re-assessment and modification of physiotherapy intervention.
- Application of selected therapeutic techniques.
- Assessment of students.

### **Unit 13 Clinical practicum in Pulmonary Rehabilitation Program (Part B)**

- Respiratory rehabilitation in patients with chronic respiratory diseases: chronic obstructive pulmonary disease, cystic fibrosis, bronchial asthma, pulmonary fibrosis, interstitial pulmonary diseases. Functional evaluation, breathing exercises, aerobic exercise and muscle strengthening, patient education.
- Assessment of the quality of life with specific and general questionnaires.
- Assessment of muscle strength of the respiratory and skeletal muscles.

- *Design of a group therapeutic exercise program based on the results of patient's assessment.*
- *Educating the pattern of breathing and the management of symptoms of dyspnea.*
- *Educating the patient in the management of exacerbation symptoms.*
- *Long-term planning of re-assessment and modification of physiotherapy intervention.*
- *Application of selected therapeutic techniques.*
- *Assessment of students.*

#### **Section 14. Final Assessment of students**

- *The overall performance of the students is evaluated in accordance with the institution's study rules and the way the course is evaluated.*

#### **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>The teaching methods of the theoretical part of the course include many teaching methods:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</i></li> <li>• <i>Class discussion and feedback</i></li> <li>• <i>Working in small groups or individually</i></li> <li>• <i>Student presentations</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, online discussion through an asynchronous training platform and e-mail)</i></li> <li>• <i>Guest speakers</i></li> </ul> <p><i>The laboratory part of the course is taught using the following methods and means:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of the methods and techniques of the course</i></li> <li>• <i>Demonstration and application of laboratory equipment (tracheobronchial cleaning devices, chest models, and models for the internal organs, etc.)</i></li> <li>• <i>Work in small groups</i></li> <li>• <i>Student presentations</i></li> <li>• <i>Analysis - presentation of clinical cases</i></li> <li>• <i>Clinical application</i></li> </ul> <p><i>The clinical part of the course is conducted in the hospital with guidance of experienced clinical physiotherapists and with the use of nursing, laboratory, and clinical equipment:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of methods and techniques applied to the rehabilitation of hospitalized patient</i></li> <li>• <i>Demonstration and application of the laboratory equipment in the physiotherapy department</i></li> <li>• <i>Clinical training of students in small groups</i></li> <li>• <i>Clinical case presentations by students</i></li> <li>• <i>Analysis – presentation of clinical cases</i></li> <li>• <i>Clinical application</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory</i>	<i>26 hours</i>
	<i>Clinical practice</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>72 hours</i>

	Course total (25 hours workload per credit unit)	150 hours (6 ECTS)
<p><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. A basic prerequisite is the successful completion of the theoretical, laboratory and clinical part of the course. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course: <p>a final written evaluation is carried out which includes development questions and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</p> </li> <li>• for the laboratory part of the course: <p>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the workshop is from 0-10. The weight of the final tests in the laboratory part corresponds to 20% of the final score (weight factor 0.2).</p> </li> <li>• for the clinical part of the course: <p>oral examinations, assignment, presentation, and implementation of physiotherapeutic intervention weekly in the nursing area. In each course, the teachers evaluate the participation of the student and his/her ability to respond adequately in the treatment of the clinical case. Specifically, the examination is based on the ability to approach the patient's ability, history taking, the order in which the evaluation is carried out, the ability to set short- and long-term therapeutic goals and the application of appropriate physiotherapeutic techniques. The student must have successfully completed all specific physiotherapeutic interventions that cover all physiotherapy techniques in different wards. The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by his/her weekly presence; is calculated equally by the grade he/she collects in each clinical placement he/she performs. The weighting of the final examinations in the clinical part corresponds to 10 % of the final score (weighting factor 0.1).</p> </li> </ul>	

## ATTACHED BIBLIOGRAPHY

### - Suggested bibliography:

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2. Charman S. Robinson G., Stradling J., West S. Oxford Εγχειρίδιο Πνευμονολογία (Μετάφραση Αγγλικής Έκδοσης) Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, Αθήνα 2007.
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9. Frownfelter, D., Dean E. Cardiovascular and Pulmonary Physical Therapy. Evidence and Practice. 5th edition, Mosby Elsevier, 2012.
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## 2.1.2 KINESIOTHERAPY-THERAPEUTIC EXERCISE

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	3 <sup>rd</sup>
<b>COURSE TITLE</b>	KINESIOTHERAPY-THERAPEUTIC EXERCISE		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
	<b>LECTURES</b>	<b>3</b>	<b>6</b>
	<b>LABORATORY</b>	<b>2</b>	
<b>COURSE TYPE</b>	<b>SPECIALTY</b>		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. list the effects of immobilization and mobilization on the various tissues of the body,</li> <li>2. apply various forms of therapeutic exercise,</li> <li>3. list the features and indications - contraindications of passive movement, assisted movement and resistance exercise,</li> <li>4. describe the mechanisms of loss of tissue elasticity as well as list the types, characteristics, and applications of stretching exercises,</li> <li>5. choose the appropriate exercise depending on the goal of treatment and progressivity,</li> <li>6. evaluate the range of motion of the joints and record its findings in a systematic way,</li> <li>7. apply passive, assisted movement and resistance exercise to all individual parts of the body,</li> <li>8. apply various types of stretching exercises; teach the patient the self-stretching,</li> <li>9. apply goniometry of the joints and evaluate muscle strength and proprioception,</li> <li>10. apply various relaxation techniques of the body,</li> <li>11. select and apply appropriate therapeutic exercises based on the progressivity and functionality of the individual,</li> <li>12. teach the patient the self-execution of the proposed kinesiotherapeutic program.</li> </ol>

### General Competences

- *Search for, analyze and synthesize data and information using necessary technologies*
- *Adapting to new situations*
- *Decision-making*
- *Independent work*
- *Teamwork*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to movement

- *Role of movement and therapeutic exercise in humans; importance in rehabilitation. Role of deterioration of movement*
- *The clinical role of torque, force, action - reaction, work - energy - power, inertia, friction, movement - speed, center of gravity of the body, support surface, stable and unstable balance, pendulum, pulley and the choice of these phenomena in the application of therapeutic exercise in rehabilitation.*

#### Section 2. Role of the muscle and its characteristics in recovery - Immobilization effects on body tissues

- *Role of the construction of muscle, muscle fibers, various kinds of muscle contractions in therapeutic exercise and rehabilitation.*
- *Factors that affect muscle contraction and how they are used in recovery, co-activation of muscle antagonists and their role.*
- *The role of levers in rehabilitation, clinical applications.*
- *Tissue adaptations during immobilization.*
- *Deterioration of the strength of the muscle during immobilization, relationship of immobilization length and occurring changes.*

#### Section 3. General principles in the assessment of selected movement - Passive movement

- *Introduction to the evaluation of movements, active and passive range of motion, the role of passive and active structures (bones, cartilage, follicular ligamentous elements, skin, muscles, etc.) in the range of motion.*
- *The role of passive movement in rehabilitation, how it is applied, when it is applied, and what does passiveness have to do with violent passive movement and special manipulations.*
- *Factors that determine the application of passive movement, indications – contraindications.*
- *Continuous passive movement (CPM), indications – contraindications.*

#### Section 4. Micodynamic and tachodynamic muscle relationship and their role in rehabilitation

- *Selection Criteria for the length of the muscle and the speed of contraction, type of muscular work and their application in rehabilitation, relationship between muscle length and strength contraction, relationship between muscle architecture and strength production, differences between healthy and weak muscles.*
- *Relationship between speed and strength of the muscle, effect of the speed and length of the muscle on the isometric, concentric, and eccentric contraction of the muscle and their role in the restoration.*

#### Section 5. Active movement

- *The role of active movement in rehabilitation and its assessment in relation to gravity and the work produced, in a specific contraction of the muscle.*
- *Suspended movements-Supported-Assisted-Simple energetic.*
- *Selected Criteria and ways of increasing the strength by using these methods and applications in rehabilitation.*

#### Section 6. Muscle strengthening & Endurance - Exercise with resistance

- *Factors by which muscle strengthening and increasing endurance are determined. Peculiarities in patients.*
- *The role of concentric, eccentric, and isometric contraction in muscle strengthening and increasing endurance.*
- *What is isotonic and what is isokinetic resistance exercise, what are the differences between them and the peculiarities when applying to patients.*
- *Means and methods of increasing strength and endurance with resistance (free weights, tires, modern equipment, etc.), by what criteria are selected in rehabilitation and with which in sports, indications, and contraindications in their application.*
- *Exercise with resistance to an open and closed kinetic chain, peculiarities in rehabilitation.*

- *Ways to assess strength and endurance in patients.*

### **Section 7. Elasticity of tissues - Range of motion - Stretching**

- *Stiffness causes and its measurement.*
- *Range of motion and factors that affect it. Peculiarities in patients.*
- *What is stretching, how the elasticity of collagen tissue behaves in relation to the speed and size of the stretching force.*
- *What is the relationship between the temperature of the tissue and the possibility of stretching?*
- *stretching of the myotendonium whole and follicular ligamentous elements.*
- *stretching and multiarticular muscles.*
- *Stretching techniques and applications in prevention and rehabilitation.*

### **Section 8. Evaluation of range of motion - Goniometry of the joints**

- *Clinical and objective ways to assess range of motion.*
- *Methods and ways of recording goniometry.*
- *Clinical evaluation of muscle elasticity.*

### **Section 9. Proprioception**

- *Introduction to the concept of proprioception.*
- *Role of proprioception in rehabilitation.*
- *General principles in assessing proprioception.*
- *General principles in reeducating proprioception.*

### **Section 10. Relaxation**

- *Role of relaxation in physiotherapy.*
- *What is local relaxation and what is generalized relaxation.*
- *Elements of sympathetic and parasympathetic nervous system.*
- *What is stress; means of controlling.*
- *What are the techniques that have been used to date?*
- *The effect of movement on relaxation.*
- *The role of relaxation in the chronically ill patient.*
- *Role of relaxation in various pathological conditions; application of techniques.*

### **Section 11. Exercise in water - Hydrokinesiotherapy**

- *Physiological effects of exercise in warm water.*
- *Therapeutic effects of exercise in water.*
- *Hydrotherapeutic means - Indications - Contraindications - Precautions.*
- *Preparation for immersion.*
- *Technique of exercises in water.*
- *Individual exercise of patients in the water.*
- *Group exercise in the water.*

### **Section 12. Introduction to the concept of Physiotherapy assessment which aims in therapeutic exercise**

- *What is assessed, how is it assessed, what instruments are used?*
- *age, height, weight, endurance, strength, elasticity, proprioception, function.*
- *How: by recording the subjective symptoms, by detecting and recording the objective findings.*
- *By what means: with corner meters, with hands, with scoops, with dynamometers, ergometers, scoliometers, etc. and finally, with all kinds of inventions and choices from the physiotherapist and the patient.*
- *Considering the findings for the selection of the appropriate therapeutic exercise.*

### **Section 13. Progressivity in therapeutic exercise - Clinical reasoning and problem solving related to therapeutic exercise**

- *Principles of progressivity in exercise.*
- *Progressivity in power.*
- *Progressivity in endurance.*
- *Progressivity in range of motion.*
- *Progressivity in proprioception and relaxation.*
- *Progressivity in functionality.*
- *English terminology related to the subject of the course.*

## **Section 14. Final assessment**

- *The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Passive Mobilization I**

- *Introduction to the application of therapeutic exercise.*
- *Learning and applying techniques of passive mobilization to maintain range of motion and elasticity of the joints in upper extremity muscles.*
- *Learning and applying techniques of passive mobilization to maintain range of motion and elasticity of the joints in cervical spine muscles .*
- *Application of continuous passive mobilization using upper limb CPM.*
- *Examples and applications.*
- *Assessment of students.*

### **Section 2. Passive Mobilization II**

- *Learning and applying techniques of passive mobilization to maintain range of motion and elasticity of the joints and muscles of the lower extremity.*
- *Learning and applying techniques of passive mobilization to maintain range of motion and elasticity of the joints and muscles of the thoracic and lumbar spine.*
- *Teaching the execution of passive mobilization by the patient himself and his environment.*
- *Apply continuous passive mobilization using lower limb CPM.*
- *Examples and applications.*
- *Evaluation of students.*

### **Section 3. Assisted exercise I**

- *Learning and applying ways of suspended and assisted upper limb exercise using the hands and various other means of reducing gravity (smooth surface, horizontal plane, straps, pulleys, water, etc.).*
- *Examples and applications.*
- *Evaluation of students.*

### **Section 4. Assisted exercise II**

- *Learning and applying ways of suspended and assisted exercise of the lower extremity and spine using the hands and various other means of reducing gravity (smooth surface, horizontal plane, straps, pulleys, water, etc.).*
- *Teaching the execution of an assisted exercise by the patient himself and his environment.*
- *Learning and implementing assisted exercises with emphasis on the functionality of the patient.*
- *Examples and applications.*
- *Evaluation of students.*

### **Section 5. Exercise with resistance I**

- *Learning and applying ways of exercise with resistance to the upper end using hands, free weights, rubbers, isokinetic machine, etc.in an open and closed biokinetic chain.*
- *Examples and applications.*
- *Evaluation of students.*

### **Section 6. Exercise with resistance II**

- *Learning and applying ways of exercise with resistance to the lower extremity and spine using hands, free weights, tires, isokinetic machine, etc. in an open and closed biokinetic chain.*
- *Examples and applications.*
- *Evaluation of students.*

### **Section 7. Exercise with resistance III**

- *Teaching to perform exercise with resistance by the patient himself in the upper, lower extremity and spine.*
- *Learning and applying exercises with resistance with emphasis on function.*
- *Examples and applications.*
- *Evaluation of students.*

### Section 8. Elasticity – Stretching I

- *Learning and applying the various techniques of active, passive, and mechanical stretching of muscles and follicular ligamentous elements using a specific example (specific muscle, follicle, ligament and joint).*
- *Examples and applications.*
- *Evaluation of students.*

### Section 9. Elasticity – Stretching II

- *Learning and applying stretching techniques to all muscles of the upper extremities in detail.*
- *Teaching and learning self-stretching in muscles and follicular ligamentous elements of the upper extremity.*
- *Learning and applying prolonged mechanical dilatation in specific clinical cases of the upper extremity.*
- *Examples and applications.*
- *Evaluation of students.*

### Section 10. Elasticity – Stretching III

- *Learning and applying stretching techniques to all muscles of the lower extremities and spine in detail.*
- *Teaching and learning self-stretching in muscles and follicular ligament elements of the lower extremity and spine.*
- *Learning and applying prolonged mechanical dilatation in specific clinical cases of the lower extremity and spine.*
- *Examples and applications.*
- *Evaluation of students.*

### Section 11. Range of motion – Goniometry

- *Clinical control of range of motion and elasticity of key joints and muscles.*
- *Learning and applying goniometry to the various joints of the body in detail.*
- *Examples and applications.*
- *Evaluation of students.*

### Section 12. Relaxation – Proprioception

- *Learning and applying the various relaxation techniques.*
- *Learning and applying ways to assess proprioception in key joints of the body.*
- *Learning and applying ways to retrain proprioception in basic clinical cases.*
- *Examples and applications.*
- *Evaluation of students.*

### Section 13. Progressivity in therapeutic exercise

- *Application of progressive exercise to increase range of motion, strength, endurance, proprioception and functionality.*
- *Examples and applications.*
- *Evaluation of students.*

### Section 14. Final evaluation

- *The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way of evaluation of the course mentioned below.*

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>The teaching methods of the theoretical part of the course include:</p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a whiteboard, an in-camera, a fixed overhead projector, video and television.</i></li> <li>• <i>Discussion in class and feedback.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Work in small groups or individual.</i></li> <li>• <i>Student presentations.</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through an asynchronous training platform and e-mail).</i></li> <li>• <i>Visiting speakers (following a decision of the sector).</i></li> </ul> <p><i>The laboratory part of the course is taught using the following methods and means:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of the methods and techniques of the course by the teacher and application in pairs of students.</i></li> <li>• <i>Demonstration and application of laboratory equipment (isokinetic dynamometer, balance platform, means of exercise such as balls, pulleys, suspensions, tires, free weights, etc., angometers, electrogonometers, EMG, dynamometers, etc.).</i></li> <li>• <i>Work in small groups.</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory</i>	<i>26 hours</i>
	<i>Study of bibliography</i>	<i>85 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>150 hours (6 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. A basic prerequisite is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specified as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>a final written evaluation is carried out which includes development questions and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the workshop is from 0-10. The weight of the final tests in the laboratory part corresponds to 30% of the final score (weighting factor 0.3).</i></p>	

## ATTACHED BIBLIOGRAPHY

*- Suggested bibliography:*

1. Adler S., Beckers B., Buck M. Η μέθοδος PNF, Εκδόσεις Σιώκης, 1998.
2. Alter M. Science of Flexibility, 3rd Edition, Human Kinetics, 2004.
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6. Dvir Z. Isokinetics, muscle testing, interpretation, and clinical applications, Churchill Livingstone, 2004.
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8. Evjenth O., Hamberg J. Muscle stretching in manual therapy. A clinical manual- Volume I, II, Alfta Rehab Forlag, 1993.
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18. LeVeau B. Biomechanics of human motion, Williams & Lissner, W. B. Saunders Company, Philadelphia, 1977.
19. Lieber R. Skeletal Muscle Structure, Function & Plasticity, Lippincott Williams & Wilkins, 2002.
20. Mandle C.L. The efficacy of relaxation response interventions with adult patients. A review of the literature. Journal of cardiovascular nursing. 1996.
21. Margaret Reid-Campion. Hydrotherapy in Paediatrics, Butterworth-Heinemann Ltd, 1991.
22. Norm A., Hanson B. Θεραπευτική άσκηση στο νερό. Εκδόσεις Παρισιάνου, 2000.
23. Nyland J. Clinical Decisions in Therapeutic Exercise: Planning and Implementation (Hardcover), Prentice Hall, 2005.

## 2.1.3 CLINICAL ELECTROTHERAPY

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	3 <sup>rd</sup>
<b>COURSE TITLE</b>	CLINICAL ELECTROTHERAPY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	5
LABORATORY		1	
<b>COURSE TYPE</b>	SPECIALTY		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p><b>The student will be able after the end of the course to:</b></p> <ol style="list-style-type: none"> <li>1. <i>develop clinical reasoning, and by considering the theoretical, research and clinical data to select and apply electrical irritation, based on considering the patient's problems and their indications and contraindications, and to integrate him into a more general rehabilitation regimen,</i></li> <li>2. <i>evaluate the results of the application of electrical irritation,</i></li> <li>3. <i>apply, safely and effectively, electrical irritation based on the particularities of the condition and the patient in general,</i></li> <li>4. <i>applies electrical irritation based on the anatomical peculiarities of each area of the human body.</i></li> </ol>
<b>General Competencies</b>
<ul style="list-style-type: none"> <li>• <i>Search, analyze and synthesize data and information, using the necessary technologies</i></li> <li>• <i>Adapting to new situations</i></li> <li>• <i>Decision-making</i></li> <li>• <i>Independent work</i></li> <li>• <i>Teamwork</i></li> </ul>



## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to electrotherapy

- *Summary data on Electrical Current Physics (intensity, capacity difference, resistance, conductor capacity and induction, Ohm's law, etc.).*
- *Physiological reactions of the human body to the passage of electric current.*
- *Types of Electrical Therapeutic Currents. Presentation of individual characteristics (phase, pulse, pulse, pulse series, etc.).*

#### Section 2. Pain

- *Neurophysiology and regulation of pain. Pain control gate theory. Types of pain; mechanisms of peripheral and central sensitization.*
- *Methods of measurement and evaluation of pain. Introduction to electroanalgesia*

#### Section 3. Transcutaneous Electrical Nervous Irritation (TENS) I

- *Definition. Mechanism of action. Types, parameters, and application results.*

#### Section 4. Transcutaneous Electrical Nervous Irritation (TENS) II

- *Techniques of superficial irritation of pain-trigger points.*
- *TENS type of acupuncture.*
- *Ways of operating devices. Points of attention to the application/risks. Clinical effectiveness of each of the application techniques in relation to each clinical case.*

#### Section 5. Interpolated currents

- *Definition. Mechanism of action. Forms, parameters and results of application.*
- *Ways of operating devices. Points of attention to the application/risks. Clinical effectiveness of each of the application techniques in relation to each clinical case. .*

#### Section 6. High Voltage Electrical Irritation

- *Definition of High Voltage Electrical Irritation. Mechanism of action. Forms, parameters and results of application.*
- *Ways of operating devices. Points of attention to the application/risks. Clinical effectiveness of each of the application techniques in relation to each clinical case*

#### Section 7. Iontophoresis. Inflammation

- *Definition. Theoretical basis. Mechanism of action. Usefulness of the method. Pharmaceutical substances used in the method. Implementation parameters and results; points of attention to implementation/risks.*
- *Definition and stages of inflammation. Healing of different tissues. Association with clinical cases. Forms and parameters of electric currents to aid healing*

#### Section 8. Muscle contraction. Introduction to electrical muscle irritation

- *Neurophysiology of normal muscle contraction. Effect of electrical irritation on muscle contraction. Differences of electrical muscle irritation with voluntary contraction and voluntary exercise.*

#### Section 9. Electrical muscle irritation. Irritation of naturally innervated muscles

- *Principles, parameters, and effects of muscle electrical irritation.*
- *Types of currents of muscle irritation.*
- *Electrical irritation of the ribbed muscles. Methods of application. Application parameters. Indications and contraindications of application.*
- *Ways of operating devices. Points of attention to the application/risks. Clinical effectiveness of each method in relation to each clinical case.*

#### Section 10. Motor muscle points. Functional electrical irritation

- *Presentation of the motor signs of the muscles. Utility of their knowledge. Techniques for irritating them.*

- *Definition and usefulness of functional electrical irritation. Indications. Points of attention to the application/risks. Clinical effectiveness.*

### **Section 11. Electrical irritation of denervated muscles**

- *Injury of peripheral nerves. Changes that the denervated muscles undergo in the course of time. Effect of electricity on the denervated muscles.*
- *Appropriate electrical irritation of denervated muscles. Methods, parameters and results of application. Signs of attention to application/risks. Clinical efficacy.*

### **Section 12. Electromyographic biofeedback**

- *Definition. Types and mechanism of their action.*
- *Application techniques, parameters and results.*
- *Ways of operating devices. Points of attention to the application/risks. Clinical effectiveness of each method in relation to each clinical case.*

### **Section 13. Other uses of biofeedback**

- *Combined application of electromyographic biofeedback and muscle irritation. Indications and clinical effectiveness.*
- *Application techniques.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of students.**

- *The overall performance of the students is evaluated in accordance with the Institution's study regulations and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Principles of application of electrotherapy**

- *Demonstration of the laboratory's electrotherapy devices and classification according to their mechanism of action.*
- *Safety of the patient and physiotherapist when using the devices.*
- *Operation, control, and maintenance of devices.*
- *Evaluation of students. .*

### **Section 2. Methods of measurement and evaluation of pain and sensation**

- *Application of each method by the students in groups in selected cases for each group.*
- *Evaluation of students.*

### **Section 3. Transcutaneous Electrical Nervous Irritation (TENS) I**

- *Demonstration of TENS devices and how they work. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by students in groups, based on hypothetical clinical case for each group.*
- *Evaluation of students. .*

### **Section 4. Transcutaneous Electrical Nervous Irritation (TENS) II**

- *Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students. .*

### **Section 5. Interpolated currents**

- *Demonstration of devices for interpolated currents and the way in which they operate. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 6. Iontophoresis**

- *Demonstration of iontophoresis devices and how they work. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 7. High Voltage Electrical Irritation, Application of currents to aid healing**

- *Demonstration of high voltage electrical irritation devices and how they work. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 8. Electrical irritation of the ribbed muscles I**

- *Demonstration of electrical muscle irritation devices and how they work. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 9. Electrical irritation of the ribbed muscles II**

- *Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 10. Electrical irritation of denervated muscles I**

- *Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 11. Electrical irritation of denervated muscles II**

- *Demonstration of electromyographic bioanatrodotis devices and the way they work. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students. Evaluation of students.*

### **Section 12. Electromyographic biofeedback**

- *Demonstration of electromyographic bioanatrodotis devices and the way they work. Demonstration of ways of application. Indications – contraindications. Ways to avoid errors during application. Application of the method by the students in groups, based on a hypothetical clinical case for each group.*
- *Evaluation of students.*

### **Section 13. Clinical reasoning and creation of treatment regimens**

- *Selection of an electrotherapeutic method by the students, per group, aiming at the creation and implementation of a therapeutic regimen protocol for a specific clinical case for each group.*
- *Combined application of ultrasound and electrotherapy.*
- *Evaluation of students.*

### **Section 14. Final Assessment of students.**

- *The overall performance of the students is evaluated in accordance with the Institution's study regulation and the way the course is evaluated below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

DELIVERY	FACE TO FACE	
<p><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b></p>	<p><i>The methods and means of teaching the theory of the course include:</i></p> <ul style="list-style-type: none"> <li>• <i>Guided study of key articles and other sources, which are communicated in advance so that the student can understand more effectively the content of the lectures-presentations.</i></li> <li>• <i>Lectures-lectures using a whiteboard, a fixed overhead projector, video and television.</i></li> <li>• <i>Discussion in class and feedback.</i></li> <li>• <i>Questions for the understanding of the important points of each lecture-presentation, which each student answers and self-evaluates.</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (multimedia, electronic discussion through an asynchronous training platform and e-mail).</i></li> </ul> <p><i>The laboratory part of the course is taught using the following methods and means:</i></p> <ul style="list-style-type: none"> <li>• <i>Presentation of the topic under preparation by the instructor, using a student as a model. Then the students in groups of 4-5, study and analyze the problem under the supervision of the teacher. One applies electrotherapy, one is the model, and two or three observe the application. The model and observers guide the "applicator" to improve, and then change roles.</i></li> <li>• <i>Use of laboratory equipment for a better understanding of the subject matter (practical application using electrotherapy devices).</i></li> </ul>	
<p><b>TEACHING METHODS</b></p>	<p><b>Δραστηριότητα</b></p> <p>Lectures</p> <p>Laboratory</p> <p>Study of bibliography</p> <p>Course total (25 hours workload per credit unit)</p>	<p><b>Φόρτος Εργασίας Εξαμήνου</b></p> <p>39 hours</p> <p>13 hours</p> <p>73 hours</p> <p>125 hours (5 ECTS)</p>
<p><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. A basic prerequisite is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specified as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>a final written evaluation is carried out which includes development questions and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the workshop is from 0-10. The weight of the final tests in the laboratory part corresponds to 30% of the final score (weighting factor 0.3).</i></p>	

**ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

1. Γιόκαρης Π. Θεραπευτικά σχήματα - Κλινική Ηλεκτροθεραπεία, Εκδόσεις Γράμματα Α.Ε., 2007.
2. Μπάκας Ε. Φυσική Ιατρική και Αποκατάσταση, Τόμος Ι, Ιατρικές Εκδόσεις Ζήτα, 1995.
3. Φραγκοράπτης Ε. Εφαρμοσμένη Ηλεκτροθεραπεία, Εκδόσεις SALTO, 2002.
4. Nanda B.K. Ηλεκτροθεραπεία: Βασικές Αρχές, Εκδόσεις Πασχαλίδης, 2018.
5. Nelson R.M., Currier D.P., Hayes K.W. Clinical Electrotherapy, 3rd Edition, Apleton & Lange, 1999.
6. Prentice W.E. Therapeutic Modalities for Sports Medicine and Athletic Training, 6th Edition, McGraw Hill, 2009.
7. Robertson V., Ward A., Low J., Reed A. Ηλεκτροθεραπεία: Βασικές Αρχές και Πρακτική Εφαρμογή, 4η Έκδοση, Επιστημονικές Εκδόσεις Παρισιάνου, 2011.
8. Watson T. Ηλεκτροθεραπεία: Τεκμηριωμένη Πρακτική, Εκδόσεις Πασχαλίδης, 2011.

## 2.1.4 NEUROLOGY

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	2 <sup>nd</sup>
<b>COURSE TITLE</b>	NEUROLOGY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		4	4
<b>COURSE TYPE</b>	GENERAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/1056/">https://eclass.uop.gr/courses/1056/</a>		

## LEARNING OUTCOMES

<b>Learning Outcomes</b>
After completion of the course, students will be able to:
<ol style="list-style-type: none"> <li>1. describe the functioning and dysfunction of the nervous system,</li> <li>2. recognize and evaluate sensory and mobility disorders,</li> <li>3. recognize the symptoms of various diseases and syndromes of the nervous system,</li> <li>4. recognize congenital and acquired lesions of the nervous system;</li> </ol>
<b>General Competencies</b>
<ul style="list-style-type: none"> <li>• Search, analyze and synthesize data and information, using the necessary technologies</li> <li>• Adapting to new situations</li> <li>• Decision-making</li> <li>• Independent work</li> <li>• Teamwork</li> </ul>

## SYLLABUS

## Section 1. Introduction to Neurology

### **Subject of the course – connection with other health sciences.**

1. *Elements of anatomy and neurophysiology of the Nervous System.*
2. *Nervous tissue - neurons - neuroglia. The nervous system - the brain - the spinal cord - the meninges - the cerebrospinal fluid - the cerebral nerves - the spinal nerves. Conformation of the nervous system - conformation of the brain - conformation of the spinal cord.*

### **Section 2. Sensory system**

- *Anatomical elements - Sensory pathways and types of sensation.*
- *Disturbances of sensation - Sensory syndromes.*
- *Methods of sensory examination.*

### **Section 3. The Executive Motor Mechanism**

- *Anatomical elements. The normal role of the executive systems. Voluntary – unintentional mobility.*
- *Upper and Peripheral Motor Neuron. Extrapyramidal tract.*
- *Disturbances in the functioning of the executive motor mechanism and methods of examination.*

### **Section 4. The regulatory motor mechanism**

- *Anatomical and physiological elements.*
- *The spinal regulatory mechanism.*
- *The cerebellum. Physiological role - disorders (ataxia).*
- *Disturbances in the functioning of the regulatory motor mechanism (synergy of movements – balance) and methods of examination.*

### **Section 5. The higher cortical functions – Apraxia, Agnosias and Aphasias**

- *The cortical mechanism of eupraxia. Inactions; methods of examination.*
- *The cortical mechanism of knowledge. Agnosias; methods of examination.*
- *The cortical mechanism of speech. Aphasias; methods of examination.*

### **Section 6. Cranial nerves**

- *Anatomical elements - localization.*
- *Physiological function, disorders of operation and methods of examination.*

### **Section 7. Localization of damage to the brain, spinal cord, and Peripheral Nervous System.**

#### **Clinical – laboratory tests**

- *Methods of locating lesions in the brain (based on imaginary axes and by areas of specialized functions).*
- *Traumatic brain injuries (fractures, concussion, brain contusion, etc.).*
- *invasive treatments in the brain and spinal cord.*
- *Post-traumatic complications.*
- *Localization of damage to the spinal cord - injuries. Clinical medullary syndromes*
- *Localization of damage to the Peripheral Nervous System – injuries.*
- *Clinical examinations in neurology (Magnetic Resonance Imaging (MRI), functional magnetic resonance imaging (fMRI), computed tomography (CT), electroencephalogram (EEG), electromyography (EMG), Ultrasound, lumbar puncture – CSF examination).*

### **Section 8. Cerebral palsy**

- *Definition, epidemiology, etiology, classification, clinical picture (types, forms), concomitant disorders, etc.*
- *Treatment of Cerebral Palsy.*

### **Section 9. Vascular diseases of the brain**

- *Elements of anatomy and physiology. Perfusion of the brain.*
- *Acute vascular episodes.*
- *Ischemic stroke.*
- *Cerebral hemorrhage, species, clinical picture.*
- *Differential diagnosis.*

- *Cerebrovascular syndromes.*

### Section 10. Spina bifida - Hydrocephalus

- *Definition, epidemiology, etiology, pathogenesis, classification, prenatal methods of localization, clinical picture (concomitant problems).*
- *Confrontation.*

### Section 11. Diseases of the muscles and the neuromuscular synapse

- *Myopathies, muscular dystrophies.*
- *Congenital, metabolic, inflammatory myopathies, etc.*
- *Myitis, Dermatomyositis.*
- *Myasthenias (myasthenia gravis, ophthalmics, etc.).*

### Section 12. Nerve diseases – infections – toxic diseases

- *Neuritis – neuropathies.*
- *Acute infectious polyneuropathy – Guillain-Barré.*
- *Congenital anomalies.*
- *Polio – meningitis – spinal phthesis.*

### Section 13. Degenerative diseases of the Nervous System – demyelinating diseases

- *Lateral myatrophic sclerosis.*
- *Multiple Sclerosis (MS).*
- *Huntigton's Choir.*
- *Parkinson's disease.*
- *Dementia, Alzheimer's disease, etc.*
- *English terminology related to the subject of the course.*

### Section 14. Final Assessment of students

- *The overall performance of the students is evaluated in accordance with the institution's study regulations and the way of evaluation of the course mentioned below*

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>The teaching methods of the theory of the course include:</p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a whiteboard, an in-camera, a fixed overhead projector, video and television.</i></li> <li>• <i>Discussion in class and feedback.</i></li> <li>• <i>Work in small groups or individual.</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through an asynchronous training platform and e-mail).</i></li> </ul>	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>
	<i>Lectures</i>	<i>52 hours</i>
	<i>Study of bibliography</i>	<i>48 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>100 hours (4 ECTS)</i>



**STUDENT PERFORMANCE  
EVALUATION**

*The evaluation of the students' performance is carried out in accordance with the regulation of the Institution, The evaluation of the student's performance for the theoretical part of the course is carried out a final written evaluation which includes development questions and / or multiple choice questions. The score is from 0-10.*

**ATTACHED BIBLIOGRAPHY**

*- Suggested bibliography:*

1. Βασιλόπουλος Δ. *Νευρολογία, Ιατρικές εκδόσεις Πασχαλίδης & Broken hill, 2015.*
2. Λογοθέτης, Ι. Μυλωνάς, Ι. *Νευρολογία Λογοθέτη, 5<sup>η</sup> έκδοση. Εκδόσεις University Studio Press, 2016.*
3. Παντελιάδης Χρ. *Πρακτική Παιδιατρική Νευρολογία, 9<sup>η</sup> έκδοση. Εκδόσεις Γιαχούδη, 2011.*
4. Τάσκος Ν. *Νευρολογία – Συνοπτική και Εικονογραφημένη. 3<sup>η</sup> έκδοση. Εκδόσεις University Studio Press, 2016.*
5. Χατζηγεωργίου Γ. *Κρανιοεγκεφλικές κακώσεις. Ιατρικές εκδόσεις Κωνσταντάρας, 2015.*
6. Adams & Victor's, *Νευρολογία, 2<sup>η</sup> Ελληνική έκδοση, Ιατρικές εκδόσεις Πασχαλίδη & Broken hill, 2004.*
7. Aminoff M., Greenberg D., Simon R. *Κλινική Νευρολογία, 6<sup>η</sup> έκδοση. Επιστημονικές εκδόσεις Παρισιάνου, 2007.*
8. Baehr M., Frotscher M. Duus' *Εντοπιστική Διάγνωση στη Νευρολογία. Ιατρικές εκδόσεις Κωνσταντάρας, 2009.*
9. Barker R., Barasi S. *Νευροεπιστήμη με μια ματιά. Επιστημονικές εκδόσεις Παρισιάνου, 2006.*
10. Barnes M., Johnson G. *Σύνδρομο ανώτερου κινητικού νευρώνα και σπαστικότητα. Κλινική αντιμετώπιση και νευροφυσιολογία. Επιστημονικές εκδόσεις Παρισιάνου, 2008.*
11. Brust J. *Current Σύγχρονη Νευρολογία Διάγνωση και Θεραπεία, Broken Hill Publishers Ltd. 2016*
12. Hauser S. Harrison *Κλινική Νευρολογία. Επιστημονικές εκδόσεις Παρισιάνου, 2008.*
13. Johnson E. *Νευροανατομία. Ιατρικές εκδόσεις Κωνσταντάρας, Αθήνα 2012.*
14. Kalat J. *Βιολογική ψυχολογία. Εκδόσεις Έλλην, τόμοι Α' και Β', 2001.*
15. Masuhr K., Neumann M. *Νευρολογία, 6<sup>η</sup> έκδοση. Εκδόσεις "Ροτόντα", Θεσσαλονίκη 2011.*
16. Runge M., Greganti M.A. *Netter Παθολογία. Broken Hill Publishers Ltd. 2015*

## 2.1.5 PHYSIOTHERAPY IN CARDIOVASCULAR DISEASES

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	<b>3<sup>rd</sup></b>
<b>COURSE TITLE</b>	<b>PHYSIOTHERAPY OF CARDIOVASCULAR DISEASES</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
<b>LECTURES</b>		<b>3</b>	<b>6</b>
<b>CLINICAL PRACTICE</b>		<b>1</b>	
<b>COURSE TYPE</b>	<b>SPECIALTY</b>		
<b>PREREQUISITE COURSES:</b>	<b>PHYSIOLOGY</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2470/">https://eclass.uop.gr/courses/2470/</a>		

## LEARNING OUTCOMES

<b>Learning Outcomes</b>
<p><b>After completion of the theoretical part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li><i>evaluate and record nervous, cardiologic, vascular disorders in adults that lead to functional impotence.</i></li> <li><i>understands how physiotherapy intervenes in circulation disorders arising in acute and chronic cardiovascular diseases, surgeries, hormonal disorders, prolonged bed rest.</i></li> <li><i>sets therapeutic goals to improve the clinical picture and functionality of the cardiovascular patient</i></li> <li><i>re-evaluates the therapeutic intervention recognizing the signs of improvement or deterioration of the clinical picture of the patient</i></li> <li><i>understands the importance of exercise in the prevention of hypertension and cardiovascular diseases in young populations, to design and organize prevention and rehabilitation programs.</i></li> <li><i>fully organizes a therapeutic intervention protocol in hospitalized patients.</i></li> <li><i>fully understands the clinical findings and put into practice the appropriate physiotherapeutic interventions by properly examining the findings of the clinical evaluation.</i></li> <li><i>organizes, implements, and re-evaluates the therapeutic intervention plan per clinical stage of the cardiovascular or other disease.</i></li> <li><i>applies in practice physiotherapeutic techniques and means of treatment in the hospital and in the community area (described in detail in the individual sections).</i></li> <li><i>applies in practice physiotherapeutic techniques through modern information and communication technology to</i></li> </ol>

<p><i>patients who are remote from organized health care and hospitalization structures</i></p> <p>11. <i>understand as a member of the interdisciplinary community his role in pulmonary rehabilitation.</i></p> <p>12. <i>shown that he understands the moral and social problems of clinical reality.</i></p>
<p><b>General Competencies</b></p> <ul style="list-style-type: none"> <li>• <i>Search for, analyze and synthesize data and information, using the necessary technologies</i></li> <li>• <i>Adapting to new situations</i></li> <li>• <i>Decision-making</i></li> <li>• <i>Independent work</i></li> <li>• <i>Teamwork</i></li> </ul>

## SYLLABUS

### A. Contents of the theory of the course:

#### Section 1. Introduction to physiotherapy of cardiovascular diseases.

- *Epidemiological data of heart disease.*
- *Aggravating factors, morbidity and mortality.*
- *The place of physiotherapy in the prevention and treatment of cardiovascular diseases today.*

#### Section 2. Cardiovascular Parameters

- *Functional anatomical and physiology of the heart and vessels*
- *Definition and interpretation of cardiovascular parameters. Analysis of their importance in the evaluation of the clinical picture of the cardiac patient.*

#### Section 3. B Clinical and Laboratory Examinations in a cardiac patient

- *Interpretation of laboratory tests of the cardiological patient (ecticography, H.K.G., fatigue test, ergometry, echocardiogram). Presentation of the most important lesions, the pathological background that accompanies them and their importance in physiotherapeutic evaluation and intervention.*

#### Section 4. Physiotherapeutic Evaluation of the Cardiology Patient

- *Considering the data of subjective and objective evaluation, decision making and selection of therapeutic interventions.*

#### Section 5. Arterial Hypertension - Hypotension

- *Arterial hypertension and hypotension. Predisposing and aggravating factors for the development of hypertension syndromes. Prevention of hypertension, treatment of hypotension.*
- *Changes in blood pressure in various organic systems (brain, muscle tissue, viscera) in pathology and during exercise.*

#### Section 6. Coronary Artery Disease - Myocardial Infarction

- *Angina. Pathological background, risk factors (modifiable and non-modifiable). Prevention, treatment, signs of discontinuation and contraindications of physiotherapeutic intervention. The importance of exercise in the treatment of angina pectoris.*
- *Acute myocardial infarction. Pathological background, risk factors (modifiable and non-modifiable). Prevention, treatment, signs of discontinuation and contraindications of physiotherapeutic intervention.*

#### Section 7. Infarction Unit

- *Physiotherapy in the infarction unit.*
- *Criteria for the initiation – discontinuation of physiotherapeutic intervention*
- *Design of special exercise programs in patients with coronary artery disease, after reperfusion operations, patients with heart failure.*

### **Section 8. Heart Failure**

- *Heart failure, diagnosis, therapeutic interventions.*
- *Strategies to improve the physical condition of the patient with heart failure.*

### **Section 9. Heart Surgery and Cardiac Surgery Unit**

- *Description of heart surgery and heart transplantation.*
- *Elements of physiotherapeutic evaluation*
- *Indications of the beginning or interruption of physiotherapeutic intervention.*
- *Complications in high-risk groups.*

### **Section 10. Peripheral Angiopathies \_ Vascular Surgery**

- *Peripheral obstructive artery disease: Physiotherapeutic evaluation and intervention*
- *Superficial and deep vein thrombosis: Physiotherapy and prevention*
- *Description of peripheral vessel surgeries.*
- *Special elements of physiotherapeutic evaluation.*
- *Indications of the beginning or interruption of physiotherapeutic intervention.*
- *Complications in high-risk groups.*

### **Section 11. Chronic Heart Failure – Muscle Dysfunction**

- *Chronic heart failure and skeletal muscle myopathy. The importance of exercise in the treatment of myopathy, in the improvement of metabolic and structural changes that the skeletal muscles undergo.*
- *Types, type, frequency and duration of exercise applied to a cardiodeficient patient (aerobic exercise, resistance exercise).*
- *Application criteria and indications of discontinuation.*  
*Criteria for selecting each intervention strategy*

### **Section 12. Cardiovascular Rehabilitation Program**

- *Goals and benefits of a cardiovascular rehabilitation program.*
- *Design, organization and operation in various categories of cardiovascular patients.*
- *Criteria for exclusion and participation of patients in the program.*

### **Section 13. Cardiopulmonary Resuscitation**

- *Elements of basic recognition of transient cessation of cardiac and respiratory function.*
- *Resuscitation data.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of students**

- *The overall performance of the students is evaluated according to the method of evaluation of the course mentioned below.*

### **B. Contents of the clinical part of the course:**

#### **Section 1. Clinical Practice in the ICU (Part A)**

- *Clinic in the Intensive Care Unit, Increased Care Unit and Infarction Unit.*
- *Evaluation of students.*

#### **Section 2. Clinical Practice in the ICU (Part B)**

- *Clinic in the Intensive Care Unit, Increased Care Unit and Infarction Unit.*
- *Evaluation of students.*

#### **Section 3. Clinical practicum in the Intensive Care Cardiology Unit (Part A)**

- *Full evaluation of the clinical picture and laboratory findings of a hospitalized patient with coronary artery disease: case evaluation, clinical reasoning, therapeutic intervention.*
- *Criteria for the initiation of physiotherapy by evaluating the indicators of hemodynamic stabilization of the patient with coronary artery disease. Monitor monitoring.*

- *Personalized prescribing an inpatient exercise program, Phase I cardiovascular rehabilitation and its implementation.*
- *Application of breathing exercises, teaching the use of breathing practitioners.*
- *Bedside kinesiotherapy with criteria of progressive burden (passive, assisted, active exercise in individual parts of the body)*
- *Progressive uplift and gait*
- *Application of the techniques of the selected therapeutic intervention.*
- *Evaluation of students.*

#### **Section 4. Clinical practicum in the Intensive Care Cardiology Unit (Part B)**

- *Full evaluation of the clinical picture and laboratory findings of a hospitalized patient with coronary artery disease: case evaluation, clinical reasoning, therapeutic intervention.*
- *Criteria for the initiation of physiotherapy by evaluating the indicators of hemodynamic stabilization of the patient with coronary artery disease. Monitor monitoring.*
- *Personalized prescribing an inpatient exercise program, Phase I cardiovascular rehabilitation and its implementation.*
- *Application of breathing exercises, teaching the use of breathing practitioners.*
- *Bedside kinesiotherapy with criteria of progressive burden (passive, assisted, active exercise in individual parts of the body)*
- *Progressive uplift and gait*
- *Application of the techniques of the selected therapeutic intervention.*
- *Evaluation of students.*

#### **Section 5. Clinical Practicum in the Cardiology Clinic - Chronic Heart Failure (Part A)**

- *Physiotherapy in hospitalized patients with chronic heart failure: case evaluation, clinical reasoning, therapeutic intervention.*
- *Implementation of an inpatient exercise program, Phase I of cardiovascular rehabilitation, after taking into account the findings of subjective and objective evaluation and patient cooperation.*
- *Evaluation of indications and contraindications of mobilization.*
- *Outpatient Cardiac Clinic: monitoring of cases in regular outpatient clinics. Involvement in the process of obtaining the H.K.G. and the stress test. Ultrasound monitor.*
- *Application of the techniques of the selected therapeutic intervention.*
- *Evaluation of students.*

#### **Section 6. Clinical Training in the Cardiology Clinic - Chronic Heart Failure (Part B)**

- *Physiotherapy in hospitalized patients with chronic heart failure: case evaluation, clinical reasoning, therapeutic intervention.*
- *Implementation of an inpatient exercise program, Phase I of cardiovascular rehabilitation, after considering the findings of subjective and objective evaluation and patient cooperation.*
- *Evaluation of indications and contraindications of mobilization.*
- *Outpatient Cardiac Clinic: monitoring of cases in regular outpatient clinics. Involvement in the process of obtaining the H.K.G. and the stress test. Ultrasound monitor.*
- *Application of the techniques of the selected therapeutic intervention.*
- *Assessment of students.*

#### **Section 7. Clinical Practice in Heart Surgery (Part A)**

- *Preoperative evaluation and procedure for training and informing a cardiological patient about heart surgery.*
- *Teaching breathing exercises, use of breathing exercises, postoperative placement positions, bed resting and in a sitting position.*
- *Kinesiotherapy for the prevention of postoperative complications*
- *Postoperative evaluation of the clinical picture and laboratory findings of the operated patient. Continuous monitoring.*
- *Personalized prescribing an inpatient exercise program, Phase I cardiovascular rehabilitation and its implementation.*
- *Application of techniques to improve pulmonary ventilation and bronchial cleansing. Participation in the process of mechanical support of the patient's breathing and weaning, according to appropriate criteria. Bronchial suction, moistening and nebulization. Application of the active breathing cycle for bronchial drainage.*
- *Bed kinesiotherapy with continuous monitoring*
- *Mobilization in a sitting and upright position. Walking as appropriate.*
- *Application of selected therapeutic techniques.*
- *Assessment of students.*

#### **Section 8. Clinical Practice in Heart Surgery (Part B)**

- *Preoperative evaluation and procedure for training and informing a cardiological patient about heart surgery.*

- *Teaching breathing exercises, use of breathing exercises, postoperative placement positions, bed resting and in a sitting position.*
- *Kinesiotherapy for the prevention of postoperative complications*
- *Postoperative evaluation of the clinical picture and laboratory findings of the operated patient. Continuous monitoring.*
- *Personalized prescribing an inpatient exercise program, Phase I cardiovascular rehabilitation and its implementation.*
- *Application of techniques to improve pulmonary ventilation and bronchial cleansing. Participation in the process of mechanical support of the patient's breathing and weaning, according to appropriate criteria. Bronchial suction, moistening and nebulization. Application of the active breathing cycle for bronchial drainage.*
- *Bed kinesiotherapy with continuous monitoring*
- *Mobilization in a sitting and upright position. Walking as appropriate.*
- *Application of selected therapeutic techniques.*
- *Assessment of students.*

### **Section 9. Clinical Practice in Heart Surgery (Part C)**

- *Preoperative evaluation and procedure for training and informing a cardiological patient about heart surgery.*
- *Teaching breathing exercises, use of breathing exercises, postoperative placement positions, bed resting and in a sitting position.*
- *Kinesiotherapy for the prevention of postoperative complications*
- *Postoperative evaluation of the clinical picture and laboratory findings of the operated patient. Continuous monitoring.*
- *Personalized prescribing an inpatient exercise program, Phase I cardiovascular rehabilitation and its implementation.*
- *Application of techniques to improve pulmonary ventilation and bronchial cleansing. Participation in the process of mechanical support of the patient's breathing and weaning, according to appropriate criteria. Bronchial suction, moistening and nebulization. Application of the active breathing cycle for bronchial drainage.*
- *Bed kinesiotherapy with continuous monitoring*
- *Mobilization in a sitting and upright position. Walking as appropriate.*
- *Application of selected therapeutic techniques.*
- *Assessment of students.*

### **Section 10. Clinical Practice in Field Trials**

- *Evaluation of the exercise capacity of cardiovascular patients: ergospirometry, application of maximum and submaximal project production test, measurement of resistance to submaximal exercise intensity.*
- *Evaluation of patients' functional capacity by applying appropriate and reliable tests and functional activities.*
- *Application of tests.*
- *Assessment of students.*

### **Section 11. Clinical practice in a Cardiovascular Rehabilitation Program (Part A)**

- *Rehabilitation in patients with controlled angina, chronic heart failure, myocardial infarction, peripheral angiopathies.*
- *Functional evaluation, breathing exercises, aerobic exercise and muscle strengthening, patient education.*
- *Evaluation of the quality of life with specific and general questionnaires.*
- *Evaluation of muscle strength of the respiratory and skeletal muscles.*
- *Design of a group therapeutic exercise program based on the results of the assessment.*
- *Reeducating the patient in proper breathing and managing the symptoms of dyspnea in daily activities.*
- *Long-term planning of re-assessment and change of physiotherapeutic intervention.*
- *Application of the techniques of the selected intervention.*
- *Evaluation of students.*

### **Ενότητα 12. Clinical practice in a Cardiovascular Rehabilitation Program (Part B)**

- *Rehabilitation in patients with controlled angina, chronic heart failure, myocardial infarction, peripheral angiopathies.*
- *Functional evaluation, breathing exercises, aerobic exercise and muscle strengthening, patient education.*
- *Evaluation of the quality of life with specific and general questionnaires.*
- *Evaluation of muscle strength of the respiratory and skeletal muscles.*
- *Design of a group therapeutic exercise program based on the results of the assessment.*
- *Reeducating the patient in proper breathing and managing the symptoms of dyspnea in daily activities.*
- *Long-term planning of re-assessment and change of physiotherapeutic intervention.*
- *Application of the techniques of the selected intervention.*
- *Evaluation of students.*

### **Ενότητα 13. Clinical practice in a Cardiovascular Rehabilitation Program (Part C)**

- Rehabilitation in patients with controlled angina, chronic heart failure, myocardial infarction, peripheral angiopathies.
- Functional evaluation, breathing exercises, aerobic exercise and muscle strengthening, patient education.
- Evaluation of the quality of life with specific and general questionnaires.
- Evaluation of muscle strength of the respiratory and skeletal muscles.
- Design of a group therapeutic exercise program based on the results of the assessment.
- Reeducating the patient in proper breathing and managing the symptoms of dyspnea in daily activities.
- Long-term planning of re-assessment and change of physiotherapeutic intervention.
- Application of the techniques of the selected intervention.
- Evaluation of students.

#### Section 14. Final Assessment of students

- The overall performance of the students is evaluated in accordance with the institution's study regulation and the way the course is evaluated

#### TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>The teaching methods of the theory of the course include many teaching methods and means among which:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a whiteboard, an in-camera, a fixed overhead projector, video, and television</li> <li>• Classroom discussion and feedback</li> <li>• Working in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, online discussion through an asynchronous training platform and e-mail)</li> <li>• Guest speakers</li> </ul> <p>The clinical part of the course is conducted in the hospital by the guidance of experienced clinical physiotherapists and with the use of nursing, laboratory, and clinical equipment:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques applied to the rehabilitation of a hospitalized patient</li> <li>• Demonstration and application of the laboratory equipment that a physiotherapy department has in a hospital</li> <li>• Clinical training of students in small groups</li> <li>• Case presentations by students</li> <li>• Analysis - presentation of clinical cases</li> <li>• Clinical application</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	39 hours
	Clinical practice	13 hours
	Study of bibliography	98 hours
	Course total (25 hours workload per credit unit)	150 hours (6 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. A basic prerequisite is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul>	

	<p>a final written evaluation is carried out which includes development questions and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the clinical part of the course:</li> </ul> <p>oral examinations, assignment, presentation and implementation of physiotherapy intervention and weekly evaluation in the nursing area with clinical laboratory exercises and recording of patient evaluation sheets by students. In each course, teachers evaluate the participation of the student and his/her ability to respond adequately in the treatment of the clinical case. The successful or not, intervention used with the guidance of the teacher, is evaluated. Specifically, the examination is based on the student's ability to approach a patient, the ability to take history, the ability to set short- and long-term therapeutic goals and the application of appropriate physiotherapy techniques. The student must have successfully completed all specific physiotherapeutic interventions that cover all physiotherapy techniques in each clinic employed. The final exams are oral, where the student is asked to solve practical problems and perform the techniques required. The final grade of the clinic is from 0-10. The severity of the final examinations in the clinical part corresponds to 30 % of the final score (weight factor 0.3).</p>
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#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Pryor J.A. and Prasad S.A. *Physiotherapy for respiratory and Cardiac Problems. Adults and Paediatrics*. 3<sup>rd</sup> edition, Churchill Livingstone, London, 2002.
2. Reid W.D., Chung F. *Κλινική Προσέγγιση στην Καρδιοαναπνευστική Φυσιοθεραπεία. (Μετάφραση Αγγλικής Έκδοσης) Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, Αθήνα, 2009.*
3. Hampton J.R.: *Ταχεία Ερμηνεία ΗΚΓ. Εκδόσεις Π.Χ. Πασχαλίδη, 2002.*
4. Dustine J., Moore G. *ACSM's Άσκηση Χρόνιες παθήσεις και αναπηρίες. Broken Hill Publishers Ltd. 2005.*
5. Spiro S, Silvestri G, Agusti A *Κλινική Πνευμονολογία 2η έκδοση. Broken Hill Publishers Ltd. 2019.*
6. Νανάς Σ: *Καρδιοαναπνευστική Δοκιμασία Κοπώσεως και Προγράμματα Καρδιοαναπνευστικής Αποκατάστασης. Εκδόσεις Αθ. Σταμούλης, 2006.*
7. Νανάς Σ: *Αλγόριθμοι στην Καρδιοπνευμονική Αναζωογόνηση. Εκδόσεις Αθ. Σταμούλης 2006.*
8. Τούτουζας Π., Μπουντούλας Χ. *Καρδιακές παθήσεις. Εκδ. Παρισιάνος, 1992.*



## 2.2 4<sup>th</sup> SEMESTER

### 2.2.1 PRINCIPLES OF NEUROREHABILITATION

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	4 <sup>th</sup>
<b>COURSE TITLE</b>	<b>PRINCIPLES OF NEUROREHABILITATION</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	5
<b>COURSE TYPE</b>	<b>SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT</b>		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/.....</a>		

#### LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. evaluate the mechanisms of different therapies - treatment techniques and systems based on clinical reasoning,</li> <li>2. identify normal and abnormal mechanisms of development and control of posture and movement mainly on the structures involved in motor control,</li> <li>3. analyze the normal process of motor learning and recovery,</li> <li>4. identify a) motor deficits (motor weakness, abnormal muscle tone, coordination problems), b) sensory deficits (somatosensory, visual and vestibular) and c) cognitive-perceptual deficits (physical image, inactivity, attention, memory, etc.),</li> <li>5. compare the effect of different special techniques and means of physiotherapy intervention.</li> </ol>
<b>General Competences</b>

- *Adapting to new situations*
- *Decision-making*
- *Working independently*
- *Team work*

## SYLLABUS

### Contents of the course.

#### Section 1. Introduction to neurological rehabilitation

- *Theoretical basis of physiotherapy for neurological diseases.*
- *The role of the physiotherapist in the rehabilitation of neurological diseases. Modern provision of physiotherapy services. Interdisciplinary approach.*
- *Basic principles of physiotherapy approach in disorders of the Upper Motor Neuron, the Peripheral Motor Neuron (including the motor unit), the Extrapyramidal System and the Cerebellum.*
- *Principles, ethical parameters, object, and objectives.*

#### Section 2. The Control of Motion: Theories of Motor Control. Physiology of motor control

- *The concept of motor control. Determinants of motor behavior. Theories of motor control (reflex theory, hierarchical theory, systems theory, etc.). Clinical applications and limitations.*
- *The physiological mechanism of motor control. Sensory - perceptual systems and action systems.*
- *The development of clinical practice and scientific theories: The use of theories in different systems of therapeutic intervention.*

#### Section 3. Motor learning and function recovery. Physiology of motor learning and function recovery.

- *The concept of motor learning. Forms of learning. Theories of motor learning (Adams closed circuit theory, Schmidt's schematic theory and ecological theory). Clinical applications and limitations. Performance vs motor learning.*
- *Theories related to the stages of learning motor skills (Fitts & Posner three-stage model, systematic three-stage model and Gentile two-stage model). Clinical applications and limitations.*
- *Factors that contribute to the recovery of function (age, experience, etc).*

#### Section 4. Neuroplasticity

- *Plasticity of the brain - physiological mechanisms - changes. Plasticity and learning.*
- *Mechanisms of brain development and neuroplasticity. Stages of development of the nervous system. The development of the structures of the brain, spinal cord and nerves.*
- *Neuroplasticity after brain damage and recovery of function.*
- *Factors affecting the reorganization of the neural network - mapping.*

#### Section 5. Posture control - Movement. Abnormal control of posture

- *The control of body posture. Basic concepts (center of mass, base of support, center of gravity, limits of stability, etc.).*
- *Posture control systems.*
- *Mechanism for controlling upright posture and bipedal movement (walking). Stand-up balance control strategies.*
- *Problems with posture control (movement coordination problems, musculoskeletal problems, loss of posture prediction).*
- *Sensory disorders (loss of consciousness).*

#### Section 6. Disorders of muscle tone and movements – Treatment

- *Definition of muscle tone. Neurophysiology of muscle tone. Muscle tone disorders (spasticity, hypotension, stiffness, dystonia, ataxia, tremor, atrophy, etc.).*
- *The syndrome of the upper motor neuron.*
- *Motor disorders (dyskinesias, dysmetries, tremor, myoclonus, chorea, ataxia, dystonia, etc.).*
- *Physiotherapeutic means and techniques for treating spasticity and other disorders of muscle tone.*
- *Factors influencing decision making in the treatment of muscle tone disorders.*
- *Measuring effectiveness in the treatment of disorders of muscle tone. Tests - scales to assess muscle tone.*

### **Section 7. Dealing with Balance Disorders**

- *Causes and classification of vestibular disorders.*
- *Evaluation - tests (Hallpike-Dix, Epley's etc).*
- *Physiotherapy treatment of disorders of the vestibular system. Special therapeutic techniques (Frenkel, Cawthorne-cooksey etc.). Retraining balance and gait.*

### **Section 8. Somatosensory and perceptual - cognitive disability**

- *Somatosensory disability (sense of joint position and movements. Tactile recognition disorder). Assessment and treatment.*
- *Visual impairment.*
- *Emotional - cognitive development (memory, perception, language, etc.). Perceptual - cognitive impotence (inactivity, visual-perceptual impotence, ignorance of space, lack of perception of impotence and denial). Evaluation and treatment.*

### **Section 9. Muscle strengthening in the treatment of neurological disorders**

- *The effect of muscle strengthening on increasing muscle strength, promoting vigor and improving functional abilities.*
- *The application of muscle strengthening techniques in the treatment of neurological disorders - connection with the systems of physiotherapy intervention.*

### **Section 10. Treatment of pain in neurorehabilitation**

- *Neurophysiology of pain. Chronic pain.*
- *Pain management (Evaluation, recording, coping strategies). Means of treating pain.*

### **Section 11. Introduction to special physiotherapeutic means and neurorehabilitation techniques**

- *Review of psychotherapeutic means and techniques - classification and effect.*
- *Techniques to facilitate muscle activity, posture control and movement.*
- *Techniques for controlling muscle tone and maintaining the normal properties of soft tissues: passive stretching, bandaging, charging, positioning, pressure, vibration, ice, heat, massage, etc.*
- *Use of different means and techniques in different physiotherapy intervention systems.*

### **Section 12. Introduction to physiotherapy approaches - physiotherapy systems**

- *Physiotherapy approaches today - overview. Classic and modern approaches to neurorehabilitation. The evolution of physiotherapy approaches over time. Basic principles of treatment systems - physiotherapy approaches: theoretical background, purpose - objectives.*
- *Basic principles - theoretical basis of physiotherapy approaches (treatment systems): PNF, neurodevelopmental therapy (NDT), reflex mobilization - Vojta, motor retraining / training based on functional goals (Carr & Shepherd, Shumway-Cook & Wolla ), Perfetti, Rood, CIMT, Feldenkrais, guidance training (Peto) etc.*
- *Combined - selective approach. Combination of physiotherapy approaches - means and techniques.*

### **Section 13. The contribution of practice with the use of specialized technological equipment in neurological rehabilitation**

- *Specialized activities and modern technological means. Exercise - training with support equipment - robotic systems.*
- *Interactive devices - motion recognition systems.*
- *The use of implants to improve control of the patient's posture, movement and functionality.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of students.**

- *The overall performance of the students is evaluated according to the way of evaluation of the course mentioned below.*

**TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>Many teaching techniques and means are included, including:</p> <ul style="list-style-type: none"> <li>Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	39h
	Study of bibliography	86h
	Course total (25 hours workload per credit unit)	<b>125 h (5 ECTS)</b>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation. For the theoretical part of the course a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10.</p>	

**ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

**Greek bibliography:**

1. Βασιλόπουλος Δ. Νευρολογία, Ιατρικές εκδόσεις Πασχαλίδης & Broken hill, 2015.
2. Λογοθέτης, Ι. Μυλωνάς, Ι. Νευρολογία Λογοθέτη, 5η έκδοση. Εκδόσεις University Studio Press, 2016.
3. Barnes M., Johnson G. Σύνδρομο Ανώτερου Κινητικού Νευρώνα και Σπαστικότητα. Εκδόσεις Παρισιάνου, 2008.
4. Car J., Shepherd R. Νευρολογική Αποκατάσταση. Βελτιστοποίηση των Κινητικών Επιδόσεων. 2η έκδοση. Εκδόσεις Παρισιάνου; 2013.
5. Shumway-Cook A., Woollacott M. Κινητικός Έλεγχος. Από την Έρευνα στην Κλινική Πράξη. 3η έκδοση. Εκδόσεις Π. Χ. Πασχαλίδης. 2012.
6. Stokes M., Stack E. Κλινική διαχείριση για νευρολογικές καταστάσεις. 3η έκδοση. Επιστημονικές εκδόσεις Παρισιάνου. 2016.

**English bibliography:**

1. Lundy-Ekman L. Neuroscience: Fundamentals for rehabilitation. Elsevier; 5th edition, 2018.
2. Martin S., Kessler M. Neurologic interventions for physical therapy. Elsevier; 3rd edition, 2015.
3. Montgomery P., Connolly B. Clinical applications for motor control. Slack incorporated; 2nd edition, 2002.
4. Schmidt R. Motor control and learning – A behavioral emphasis. 6th edition. Human Kinetics Publisher, 2018.
5. Umphred D. A. Neurological Rehabilitation. 6th edition. Elsevier - Mosby 2012

## 2.2.2 SPECIAL MOBILIZATION TECHNIQUES

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	4 <sup>th</sup>
<b>COURSE TITLE</b>	SPECIAL MOBILIZATION TECHNIQUES		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	5
TUTORIALS		2	
<b>COURSE TYPE</b>	SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. describe the specific mobilization techniques,</li> <li>2. evaluate the need to use these techniques accurately,</li> <li>3. apply the most appropriate of these techniques to rehabilitate the patient with confidence,</li> <li>4. identify those pathological conditions that require attention to the application of techniques, as well as the contraindications to the use of these techniques, in order to apply them safely,</li> <li>5. Evaluate the patient using special mobilization techniques with confidence.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Adapting to new situations</li> <li>• Decision-making</li> <li>• Working independently</li> <li>• Team work</li> </ul>

## SYLLABUS

### A. Contents of the theoretical course.

#### Section 1. Introduction to Special Mobilization Techniques

- *Definition. Importance of special mobilization techniques. Therapeutic goals. Mechanisms of influence. Separation between techniques.*

#### Section 2. Detailed approach of the Special Mobilization Techniques

- *Parameters of mobilization. Tissue changes after immobilization and effectiveness of mobilization in them. Description of the concept of "end feeling". Indications - contraindications. Introduction to motion charts.*

#### Section 3. Evaluation using the Special Mobilization Techniques

- *Basic evaluation principles. Objectives of subjective evaluation. How to communicate and investigate the patient's condition. Objectives of clinical evaluation. Examples.*

#### Section 4. Treatment using the Special Mobilization Techniques

- *Objectives of treatment using special mobilization techniques. Maitland and Kaltenborn ratings. Technique selection process. Level of treatment. Progress in techniques.*

#### Section 5. Special Mobilization Techniques in the shoulder area

- *Application of special mobilization techniques in the shoulder and shoulder girdle area. Indications - contraindications.*
- *Indicative examples of pathological arthrokinematics of the shoulder and shoulder girdle in which the special mobilization techniques are applied.*

#### Section 6. Special Mobilization Techniques in the elbow area

- *Application of special mobilization techniques in the elbow area. Indications - contraindications.*
- *Indicative examples of abnormal arthrokinematics of the elbow in which the special mobilization techniques are applied.*

#### Section 7. Special Mobilization Techniques in the area of the pelvis and the extremity of the hand

- *Application of special mobilization techniques in the area of the pelvis and the extremity of the hand. Indications - contraindications.*
- *Indicative examples of pathological arthrokinematics of the carpal tunnel and the extremity of the hand, in which the special mobilization techniques are applied.*

#### Section 8. Special Mobilization Techniques in the hip area

- *Application of special mobilization techniques in the hip area. Indications - contraindications.*
- *Indicative examples of pathological arthrokinematics of the hip in which the special mobilization techniques are applied*

#### Section 9. Special Mobilization Techniques in the Knee Area

- *Application of special mobilization techniques in the knee area. Indications - contraindications.*
- *Indicative examples of abnormal knee arthrokinematics in which the special mobilization techniques are applied.*

#### Section 10. Special Mobilization Techniques in the ankle and foot

- *Application of special mobilization techniques in the area of the ankle and foot. Indications - contraindications.*
- *Indicative examples of pathological arthrokinematics of the ankle and foot to which the special mobilization techniques are applied.*

### **Section 11. Special Techniques for Mobilization in the Spine**

- *Application of special mobilization techniques in the spine. Indications - contraindications.*
- *Indicative examples of pathological arthrokinematics of the spine in which the special mobilization techniques are applied.*

### **Section 12. Neurodynamic tests and treatment in the Nervous Tissue using the Special Mobilization Techniques**

- *Principles of neurodynamics. Application of special mobilization techniques in the nervous tissue. Indications - contraindications.*
- *Indicative examples of pathology of the nervous tissue in which the special mobilization techniques are applied.*

### **Section 13. Special Techniques for Mobilization in Soft Molecules**

- *Specialized activities and modern technological means. Exercise - training with support equipment - robotic systems.*
- *Interactive devices - motion recognition systems.*
- *The use of implants to improve control of the patient's posture, movement and functionality.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of students.**

- *The overall performance of the students is evaluated according to the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory course.**

### **Section 1. Introduction to Special Mobilization Techniques I**

- *Introduction to special mobilization techniques by demonstrating and differentiating them from previous knowledge.*
- *- Assessment of students.*

### **Section 2. Introduction to Special Mobilization Techniques II**

- *Continuation of the introduction to the special mobilization techniques by demonstrating and differentiating them from previous knowledge.*
- *- Assessment of students.*

### **Section 3. Evaluation using the Special Mobilization Techniques**

- *Use of evaluation form (body chart). Example of subjective evaluation.*
- *Assessment of students.*

### **Section 4. Treatment using the Special Mobilization Techniques**

- *Demonstration of rhythmic and static mobilization grades. Mobilizations against Maitland / Mulligan / Kaltenborn.*
- *Assessment of students.*

### **Section 5. Special Mobilization Techniques in the shoulder area**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 6. Special Mobilization Techniques in the Elbow Area**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 7. Special Mobilization Techniques in the area of the pelvis and the extremity of the hand**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 8. Special Mobilization Techniques in the hip area**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 9. Special Mobilization Techniques in the Knee Area**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 10. Special Mobilization Techniques in the Ankle / Ankle Area**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 11. Special Mobilization Techniques in the Spine area**

- *Evaluation of the area using the special mobilization techniques. Training in the application of the individual special mobilization techniques in the area.*
- *Assessment of students.*

**Section 12. Special Mobilization Techniques in the Nervous Tissue**

- *Evaluation of the elasticity of the nervous tissue using the individual tests of the peripheral nerves.*
- *Assessment of students.*

**Section 13. Special Techniques for Mobilization in Soft Molecules**

- *Application of special mobilization techniques to the soft tissues (tendon muscles, ligaments).*
- *Assessment of students.*

**Section 14. Final Assessment of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*



**TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>										
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p>many teaching techniques and means are included, including:</p> <ul style="list-style-type: none"> <li>Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> </ul> <p><i>Practical part</i></p> <p>The laboratory part of the course is carried out in the lab with the use of nursing, laboratory, and clinical equipment:</p> <ul style="list-style-type: none"> <li>Demonstration and application of methods and techniques applied to the mobilization principles.</li> </ul>										
	<b>TEACHING METHODS</b>	<table border="1"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Semester workload</i></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><i>Lectures</i></td> <td style="text-align: center;"><i>39h</i></td> </tr> <tr> <td style="text-align: center;"><i>Practical Practice</i></td> <td style="text-align: center;"><i>26h</i></td> </tr> <tr> <td style="text-align: center;"><i>Study of bibliography</i></td> <td style="text-align: center;"><i>60h</i></td> </tr> <tr> <td style="text-align: center;"><i>Course total (25 hours workload per credit unit)</i></td> <td style="text-align: center;"><b><i>125 h (5 ECTS)</i></b></td> </tr> </tbody> </table>	<i>Activity</i>	<i>Semester workload</i>	<i>Lectures</i>	<i>39h</i>	<i>Practical Practice</i>	<i>26h</i>	<i>Study of bibliography</i>	<i>60h</i>	<i>Course total (25 hours workload per credit unit)</i>
<i>Activity</i>	<i>Semester workload</i>										
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<i>Practical Practice</i>	<i>26h</i>										
<i>Study of bibliography</i>	<i>60h</i>										
<i>Course total (25 hours workload per credit unit)</i>	<b><i>125 h (5 ECTS)</i></b>										
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</p> <ul style="list-style-type: none"> <li>for the practical part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by the daily laboratory presence of the student and is calculated equally by the grade he/she collects in each practical action he/she performs. The severity of the final examinations in the laboratory part corresponds to 30 % of the final score (weight factor 0.3).</p>										

**ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

**Greek bibliography:**

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### 2.2.3 CLINICAL TRAINING IN RESPIRATORY AND CARDIOVASCULAR PHYSIOTHERAPY

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	<b>4<sup>th</sup></b>

<b>COURSE TITLE</b>	<b>CLINICAL TRAINING IN RESPIRATORY AND CARDIOVASCULAR PHYSIOTHERAPY</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
<b>LECTURES</b>	<b>2</b>	<b>7</b>	
<b>CLINICAL PRACTICE</b>	<b>8</b>		
<b>COURSE TYPE</b>	<b>SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT</b>		
<b>PREREQUISITE COURSES:</b>	<b>RESPIRATORY PHYSIOTHERAPY</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and clinical part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. develop skills in the most modern and effective clinical methods related to the respiratory (eg listening to lung sounds, breathing exercises, etc.) and the cardiovascular system (eg measuring blood pressure, exercising, etc.),</li> <li>2. develop critical way of thinking in combination with the specialized knowledge that will be acquired,</li> <li>3. evaluate respiratory and cardiovascular diseases and apply the principles of recovery for each disease,</li> <li>4. evaluate the most appropriate remedies and rehabilitation programs,</li> <li>5. implement comprehensive therapeutic postoperative programs for patients who have undergone chest, heart, etc. surgeries, which are safe, realistic and appropriate for each clinical case,</li> <li>6. interpret the clinical findings and apply in practice all the knowledge gained in the specific subject matter, examining the findings of the clinical evaluation with confidence;</li> <li>7. develop treatment plans in the acute clinical stage or in the chronic stage of respiratory or cardiovascular rehabilitation with confidence,</li> <li>8. compare special techniques and means of treatment in the hospital more accurately.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Adapting to new situations</li> <li>• Decision-making</li> <li>• Working independently</li> <li>• Team work</li> </ul>

## SYLLABUS

### A. Contents of the theoretical course.

#### Section 1. Clinical Cardiovascular and Respiratory Physiotherapy - Documented Physiotherapy Practice

- *The position of the physiotherapist in the versatile medical-nursing treatment regimen. Management of interprofessional relations and scientific knowledge. Clinical cardiovascular and respiratory physiotherapy in hospitals in Europe, Australia, USA. Documented Physiotherapy Practice at the ICU, after surgeries, in respiratory and cardiovascular diseases.*

#### Section 2. Evaluation of the Respiratory and Cardiac patient in the hospital (Clinical Reasoning, Part A)

- *Elements of understanding the assessment process of the respiratory and cardiac patient. Recording and management of subjective, objective and laboratory findings. Recording the therapeutic intervention goals and managing the intervention techniques.*

#### Section 3. Evaluation of the Respiratory and Cardiac patient in the hospital (Clinical Reasoning, Part B)

- *Understand and manage the findings of observation, palpation, hearing, vital signs, radiographic imaging, blood gas examination, ECG, spirometric and functional examination of the patient.*

#### Section 4. Improvement of Pulmonary Ventilation (Clinical presentation)

- *Understand the techniques of improving pulmonary ventilation in the hospitalized patient. Proper placement, mobilization, means and devices in the clinic and in the ICU. Clinical justification for the selection of appropriate bronchial cleansing techniques in the clinic and in the ICU. Presentation of the research evidence of the intervention techniques and documentation of the selection.*

#### Section 5. Respiratory Diseases (Clinical Case-Acute Disease)

- *Analysis of a clinical case for an acute respiratory patient. Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic.*

#### Section 6. Respiratory Diseases (Clinical Case-Chronic Stage)

- *Analysis of a clinical case for a chronic respiratory patient. Collection of subjective and objective evaluation data and consideration of data for long-term respiratory intervention and functional rehabilitation decisions.*

#### Section 7. Heart Failure and Heart Surgery (Clinical Cases)

- *Analysis of a clinical case in a patient with heart failure. In-hospital and out-of-hospital intervention. Analysis of a clinical case in heart surgery. Evaluation and consideration of data for decision making, setting recovery goals.*

#### Section 8. Myocardial Infarction in the Infarction Unit (Clinical Case)

- *Clinical case evaluation data. Progressive physiotherapy intervention in post-infarction*

#### Section 9. Preoperative and Postoperative Respiratory Physiotherapy (Clinical case)

- *Analysis of a clinical case from the preoperative to the postoperative stage. Therapeutic goals and intervention techniques. Choice of administration and discontinuation of oxygen therapy. Selection of therapeutic means to avoid*

*pulmonary and cardiovascular postoperative complications. Criteria for starting and stopping the physiotherapy intervention.*

### **Section 10. Physiotherapy in the Intensive Care Unit**

- *Elements of mechanical ventilation (invasive and non-invasive).*
- *Monitoring of changes in the patient's cardiorespiratory parameters in the ICU (Monitoring).*
- *The importance of proper placement and mobilization in improving the respiratory function of the seriously ill, in avoiding sagging, thrombosis and deformities of the trunk and limbs*
- *Ventilator elements of the mechanically supported patient. Changes in ventilation parameters and basic weaning elements. Recognition of the signs and contraindications of physiotherapy intervention.*

### **Section 11. Peripheral Vascular Diseases (Clinical Case)**

- *Analysis of clinical cases with peripheral obstructive arterial disease - thrombophlebitis. Indications and contraindications for physiotherapy intervention*

### **Section 12. Physiotherapy intervention in a neurological patient with respiratory failure**

- *Analysis of a chronic neurological case with concomitant respiratory failure. Collection of subjective and objective evaluation data and consideration of data for long-term respiratory intervention decisions. Criteria for selecting the physiotherapy technique for the improvement of pulmonary ventilation and / or bronchial cleansing.*

### **Unit 13. Physiotherapy intervention in the pediatric and gynecological clinic**

- *Analysis of a respiratory case of a hospitalized child in the clinic. Criteria for starting physical therapy, selection of appropriate bronchial cleansing techniques. Planning parent education interventions.*
- *Case analysis in gynecological lower abdominal surgeries. Mobilization criteria and analysis of postoperative complications.*
- *English terminology related to the subject of the course.*

### **Unit 14. Final Assessment of students.**

- *The overall performance of the students is evaluated according to the way of evaluation of the course mentioned below.*

## **B. Contents of the clinical course.**

### **Section 1. Clinical Cardiovascular and Respiratory Physiotherapy - Documented Physiotherapy Practice**

- *The position of the physiotherapist in the versatile medical-nursing treatment regimen. Management of interprofessional relations and scientific knowledge. Clinical cardiovascular and respiratory physiotherapy in hospitals in Europe, Australia, USA. Documented Physiotherapy Practice at the ICU, after surgeries, in respiratory and cardiovascular diseases.*

### **Section 2. Evaluation of the Respiratory and Cardiac patient in the hospital (Clinical Reasoning, Part A)**

- *Elements of understanding the assessment process of the respiratory and cardiac patient. Recording and management of subjective, objective and laboratory findings. Recording the therapeutic intervention goals and managing the intervention techniques.*

### **Section 3. Evaluation of the Respiratory and Cardiac patient in the hospital (Clinical Reasoning, Part B)**

- *Understand and manage the findings of observation, palpation, hearing, vital signs, radiographic imaging, blood gas examination, ECG, spirometric and functional examination of the patient.*

#### **Section 4. Improvement of Pulmonary Ventilation - Bronchial Cleansing (Clinical presentation)**

- *Understand the techniques of improving pulmonary ventilation in the hospitalized patient. Proper placement, mobilization, means and devices in the clinic and in the ICU. Clinical justification for the selection of appropriate bronchial cleansing techniques in the clinic and in the ICU. Presentation of the research evidence of the intervention techniques and documentation of the selection.*

#### **Section 5. Respiratory Diseases (Clinical Case-Acute Disease)**

- *Analysis of a clinical case for an acute respiratory patient. Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic.*

#### **Section 6. Respiratory Diseases (Clinical Case-Chronic Stage)**

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- *Analysis of a clinical case in a patient with heart failure. In-hospital and out-of-hospital intervention. Analysis of a clinical case in heart surgery. Evaluation and consideration of data for decision making, setting recovery goals.*

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- *Elements of mechanical ventilation (invasive and non-invasive).*
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#### **Section 12. Physiotherapy intervention in a neurological patient with respiratory failure**

- *Analysis of a chronic neurological case with concomitant respiratory failure. Collection of subjective and objective evaluation data and consideration of data for long-term respiratory intervention decisions. Criteria for selecting the physiotherapy technique for the improvement of pulmonary ventilation and / or bronchial cleansing*

#### **Section 13. Physiotherapy intervention in the pediatric and gynecological clinic**

- *Analysis of a respiratory case of a hospitalized child in the clinic. Criteria for starting physical therapy, selection of appropriate bronchial cleansing techniques. Planning parent education interventions.*
- *Case analysis in gynecological lower abdominal surgeries. Mobilization criteria and analysis of postoperative complications.*
- *English terminology related to the subject of the course.*

#### **Section 14. Final Assessment of students.**

- *The overall performance of the students is evaluated according to the way of evaluation of the course mentioned below.*

### **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p><i>many teaching techniques and means are included, including:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</i></li> </ul> <p><i>Practical part</i></p> <p><i>The clinical practice of the course is carried out in the hospital with the training and guidance of specialized and experienced clinical physiotherapists and with the use of nursing, laboratory, and clinical equipment:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of methods and techniques applied to the rehabilitation of the patient in the hospital</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>26h</i>
	<i>Clinical Practice</i>	<i>104h</i>
	<i>Study of bibliography</i>	<i>45h</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>175 h (7 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The</i></p>	

	<p>weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the clinical part of the course:</li> </ul> <p>oral examinations, assignment, presentation and implementation of physiotherapeutic intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of patient evaluation sheets by students. In each course, the teachers evaluate the participation of the student and his/her ability to respond adequately in the treatment of the clinical case to be addressed. The successful or not, intervention used with the guidance of the teacher, is evaluated. Specifically, the examination is based on the patient's ability to approach, the taking of a history, the order in which the evaluation is carried out, the ability to set short- and long-term therapeutic goals and the application of appropriate physiotherapeutic techniques. The student must have successfully completed all specific physiotherapeutic interventions that cover all physiotherapy techniques in each clinic employed. The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and is calculated equally by the grade he/she collects in each clinical placement he/she performs. The severity of the final examinations in the clinical part corresponds to 30 % of the final score (weight factor 0.3).</p>
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## ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

### Greek bibliography:

1. Chapman S., G.Robinson, J.Stradling, S.West. Oxford Εγχειρίδιο Πνευμονολογίας (Μετάφραση Αγγλικής Έκδοσης) Ιατρικές Εκδόσεις Broken Hill Publishers, Αθήνα 2007.
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### English bibliography:

1. American Association of Cardiovascular and Pulmonary Rehabilitation. Guidelines for pulmonary Rehabilitation Programs. Human Kinetics, 3rd Ed. 2004.
2. American Association of Cardiovascular and Pulmonary Rehabilitation. Cardiac Rehabilitation Resource Manual. Human Kinetics, 3rd Ed. 2004.
3. Frownfelter, D., Dean E. Cardiovascular and Pulmonary Physical Therapy. Evidence and Practice. 4th edition, Mosby Elsevier 2006



## 2.2.4 MUSCULOSKELETAL PHYSIOTHERAPY I

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	4 <sup>th</sup>
<b>COURSE TITLE</b>	MYSCULOSKELETAL PHYSIOTHERAPY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	5
TUTORIALS		2	
<b>COURSE TYPE</b>	SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT		
<b>PREREQUISITE COURSES:</b>	KINESIOTHERAPY		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and laboratory part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. distinguish the type of musculoskeletal injury and identify the biological tissues involved;</li> <li>2. determine the course of the natural healing process, with the specifics of each tissue and plan the appropriate recovery strategy for each phase,</li> <li>3. explain the fundamental principles of rehabilitation of any musculoskeletal injury and selects, based on evidence and based on the modern literature, the most appropriate therapeutic means with confidence,</li> <li>4. identify the main methods of intervention and the risks involved in their use, in order to decide based on safety,</li> <li>5. design a rehabilitation program that is safe and appropriate for any musculoskeletal injury and clinical case, whether conservative or surgical, and that would be in line with current scientific knowledge,</li> <li>6. apply clinical assessment and rehabilitation skills with confidence,</li> <li>7. develop a treatment intervention protocol more precisely,</li> <li>8. modify the therapeutic intervention plan.</li> </ol>

## General Competences

- *Adapting to new situations*
- *Decision-making*
- *Working independently*
- *Team work*

## SYLLABUS

### A. Contents of the theoretical course

#### Section 1. Evaluation and restoration of joint mobility in pathological conditions

- *General principles in the evaluation of possible involved tissues, the reduced mobility of the joints, the total range of motion, the instability, the characteristics of the pain, the muscle weakness, the limitations of the nervous tissue, etc. as a consequence of musculoskeletal disorders. The concept of clinical reasoning and evidence-based physiotherapy practice (Evidence based Practice) in the field of musculoskeletal disorders.*
- *Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality in inflammatory, degenerative, metabolic and other pathological conditions.*
- *Design criteria for applicable simple and complex rehabilitation programs characterized by efficiency, suitability, personalization, adjustment and safety. Applications in specific categories of musculoskeletal disorders. Motivation, functionality, quality of life, self-esteem, participation of close people, group exercise.*

#### Section 2. Physiotherapy for fractures

- *Introduction - the effect of P/T on fractures, division and types of fractures, treatment, complications. Basic principles of F / T treatment, time periods, purposes and means of F / T. Clinical picture and therapeutic directions during the period of immobilization and during the period after immobilization. Preoperative and postoperative F / T treatment.*

#### Section 3. Arthritis – Rheumatism

- *Degenerative diseases - Osteoarthritis: knee, hip, spine, fingers, etc. Physiotherapy evaluation of the patient and his condition inside and outside articular, tissue and macroscopic with the use of special tests, information of diagnostic scales and other and scheduling physiotherapy rehabilitation in their conservative and surgical treatment.*
- *Rheumatoid arthritis - ankylosing spondylitis, other rheumatic diseases, autoimmune and metabolic diseases etc. Physiotherapy evaluation and rehabilitation in their conservative and surgical treatment, in early and advanced stages, self-care. Other inherited & age-related diseases (eg osteoporosis).*

#### Section 4. Arthroplasty operations on the lower extremity

- *Arthroplasty in fractures, osteoarthritis, rheumatoid arthritis, congenital malformations, injuries (hip, knee) and the role of preoperative and postoperative Physiotherapy.*

#### Section 5. Arthroplasty surgeries on the upper extremity

- *Arthroplasty in fractures, osteoarthritis, rheumatoid arthritis, congenital malformations, injuries (shoulder, elbow, fingers) and the role of preoperative and postoperative Physiotherapy.*

#### Section 6. Musculoskeletal problems of the lumbar spine

- *Evaluation of lumbar spine. Injuries and chronic painful syndromes and dysfunctions of the SS. (back pain syndrome, sciatica, zygomatic joint syndrome, spondylopathy, spinal stenosis, degenerative diseases, dysfunctions, neurological effects, rabies, thoracic outlet syndrome, etc.): pain, painful sensitive points, mobility, shortening, relapses, deformities, etc.), selection of appropriate physiotherapy means and techniques and organization of physiotherapy rehabilitation on a case by case basis.*
- *Special reference to the restoration of stability, correct posture, contraction, biofeedback, neuromuscular fitting, appropriate muscle length, muscle control and muscle capacity of the lumbar - pelvic - hip complex, combined physiotherapy techniques, interdisciplinary rehabilitation.*

#### Section 7. Musculoskeletal problems of the Cervical and Thoracic spine

- *Assessment of cervical spine. Cervical injuries. Chronic painful problems and dysfunctions of AMSS, cervical syndrome (instabilities, degenerative diseases, cervical spondylosis, sciatic nerve dysfunction, cervical artery dysfunction, Whiplash, sciatica, neurological effects, neurological effects). Stages of treatment, selection of tests, means and techniques of patient evaluation and symptoms (muscle spasm, pain, reflex pain, painful sensitive points, mobility, shortening, deformities, etc.). Selection of appropriate physiotherapeutic means and techniques and organization of physiotherapy rehabilitation on a case by case basis.*
- *Clinical evaluation skills. Clinical rehabilitation skills. Restoration of stability, correct posture, neuromuscular fitting, tissue length and area mobility, sore spots, pain mapping, headache, biofeedback, association with behavioral changes.*

### **Section 8. Musculoskeletal problems of the shoulder**

- *General principles. Assessment of the painful shoulder. Injuries-fractures of the shoulder girdle and the upper part of the arm.*
- *Chronic painful problems and shoulder dysfunctions. Stages of treatment, evaluation of the patient and symptoms (muscle spasm, pain, swelling, mobility, atrophy, adhesions, etc.), selection of appropriate physiotherapy means and techniques and organization of physiotherapy rehabilitation on a case by case basis.*
- *Biceps tendonitis, internal and external impact syndrome. Congenital bursitis. Shoulder dyskinesia.*
- *Clinical evaluation skills. Clinical rehabilitation skills. Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality. Selection of appropriate physiotherapy tests and evaluation tools as well as selection of prevention tools, techniques and aids and physiotherapy rehabilitation.*

### **Section 9. Musculoskeletal problems of the elbow, hand and wrist**

- *Evaluation of the elbow and forearm. Injuries to the elbow and forearm.*
- *Evaluation, hand and wrist injuries. Tendon injuries, fractures and dislocations of the hand, nerve injuries.*
- *Stenotic tendonitis, carpal tunnel syndrome, Dupuytren's disease, De Quervain tendonitis.*
- *Restoration of elbow dislocations. Outside and inside tendonitis of the elbow. Post-traumatic stiffness.*
- *Clinical evaluation skills. Clinical rehabilitation skills. Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality. Selection of appropriate physiotherapy tests and evaluation tools as well as selection of prevention tools, techniques and aids and physiotherapy rehabilitation.*

### **Section 10. Musculoskeletal problems of the hip**

- *Evaluation of the painful hip. Osteoarthritis, femoral congestion, etc.*
- *Clinical rehabilitation skills. Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality. Selection of appropriate physiotherapy tests and evaluation tools as well as selection of prevention tools, techniques and aids and physiotherapy rehabilitation.*

### **Section 11. Musculoskeletal problems of the knee**

- *Evaluation of the sore knee. Knee injuries. Anterior, posterior cruciate ligament injuries. Injuries of lateral joints. Diseases and traumatic injuries of the menisci. Baker's cyst. The arthritic knee.*
- *Clinical rehabilitation skills. Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality. Selection of appropriate physiotherapy tests and evaluation tools as well as selection of prevention tools, techniques and aids and physiotherapy rehabilitation.*
- *Evaluation of the patellofemoral joint. Knee fractures. Knee-knee pain syndrome. Dislocation, subluxation and six-part dislocation. Ruptures and tendonitis of the patellar tendon. Clinical evaluation skills. Clinical rehabilitation skills. Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality. Selection of appropriate physiotherapy tests and evaluation tools as well as selection of prevention tools, techniques and aids and physiotherapy rehabilitation.*

### **Section 12. Musculoskeletal problems of the ankle and foot**

- *Ankle and foot evaluation. Ankle and foot injuries. Sprains and chronic external instability of the ankle. Diseases of the Achilles tendon. Posterior tibial tendonitis. Tibial spine pain.*
- *Clinical evaluation skills. Clinical rehabilitation skills. Restoration of mobility, elasticity, pain, muscle strength, neuromuscular fitting, endurance and functionality. Selection of appropriate physiotherapy tests and evaluation tools as well as selection of prevention tools, techniques and aids and physiotherapy rehabilitation.*

### **Section 13. Upright posture, Pathological gait**

- *Posture Assessment: Clinical Assessment Skills.*
- *Mechanisms of control of pathological gait, disorder, deviation, physiotherapeutic evaluation, ways of intervention.*

- *Gait parameters and pathological patterns. Analgesic gait, medium gluteal, large gluteal, psoriatic, with plantar flexion, etc.*
- *Compensatory mechanisms.*
- *English terminology related to the subject of the course.*

#### **Unit 14. Final evaluation of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

#### **B. Contents of the laboratory course:**

##### **Section 1. Introduction to the evaluation of musculoskeletal problems**

- *Subjective and objective evaluation of an orthopedic case. Evaluation of the tissues involved, Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases.*
- *Evaluation of elasticity, muscle strength, endurance, trajectory - angulation, soft tissue, nerve tissue, pain, motor behavior in joint pathologies.*
- *General principles of history taking, observation, palpation. and mobility control, auxiliary mobility test and special ligament and joint pocket load tests. Muscle strength control.*

##### **Section 2. Therapeutic goals of physiotherapy in fractures**

- *Distinguish and apply the main objectives of musculoskeletal physiotherapy. Intervention techniques for each goal.*
- *Peculiarities of fracture patient management. Preoperative and postoperative F / T treatment.*

##### **Section 3. Therapeutic goals of physiotherapy in arthritis - rheumatism**

- *Distinguish and apply the main objectives of physiotherapy. Intervention techniques for each goal.*
- *Peculiarities of managing the patient with osteoarthritis.*

##### **Section 4. Therapeutic Objectives of Physiotherapy in Lower Limb Arthroplasty**

- *Distinguish and apply the main objectives of physiotherapy. Intervention techniques for each goal.*
- *Peculiarities of managing the patient with hip, knee arthroplasty.*
- *Demonstration and use of laboratory equipment.*

##### **Section 5. Therapeutic Objectives of Physiotherapy in Upper Limb Arthroplasty**

- *Distinguish and apply the main objectives of physiotherapy. Intervention techniques for each goal.*
- *Peculiarities of managing the patient with arthroplasty of the shoulder, elbow, etc.*

##### **Section 6. Lumbar spine**

- *Evaluation of lumbar spine. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Stages of treatment. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

##### **Section 7. Thoracic and Cervical spine**

- *Evaluation of cervical and thoracic degree. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Stages of treatment. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

### **Section 8. Musculoskeletal problems of the shoulder**

- *General principles. Assessment of the painful shoulder. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Restoration of mobility, elasticity, reduction of pain, increase of muscle strength, increase of neuromuscular fitting, endurance and functionality. Application of appropriate physiotherapy tests and evaluation tools as well as selection of means, techniques and aids for prevention and physiotherapy rehabilitation.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

### **Section 9. Musculoskeletal problems of the elbow, hand and wrist**

- *Evaluation of the elbow and forearm. Assessment of hand and wrist injuries. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Restoration of mobility, elasticity, reduction of pain, increase of muscle strength, increase of neuromuscular fitting, endurance and functionality. Application of appropriate physiotherapy tests and evaluation tools as well as selection of means, techniques and aids for prevention and physiotherapy rehabilitation.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

### **Section 10. Musculoskeletal problems of the hip**

- *Evaluation of the painful hip. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Restoration of mobility, elasticity, reduction of pain, increase of muscle strength, increase of neuromuscular fitting, endurance and functionality. Application of appropriate physiotherapy tests and evaluation tools as well as selection of means, techniques and aids for prevention and physiotherapy rehabilitation.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

### **Section 11. Musculoskeletal problems of the knee**

- *Evaluation of the sore knee. Evaluation of the patellofemoral joint. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Restoration of mobility, elasticity, reduction of pain, increase of muscle strength, increase of neuromuscular fitting, endurance and functionality. Application of appropriate physiotherapy tests and evaluation tools as well as selection of means, techniques and aids for prevention and physiotherapy rehabilitation.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

### **Section 12. Musculoskeletal problems of the ankle and foot**

- *Ankle and foot evaluation. Clinical evaluation skills.*
- *Clinical rehabilitation skills. Evaluation of the reduced mobility of the joints and the total range of motion, instability and hyperactivity, increased pain, muscle weakness, restrictions of the nervous tissue, etc., as a consequence of musculoskeletal diseases and injuries. Evaluation of elasticity, endurance, track width - angulation, soft tissue, nerve tissue, pain, and motor behavior.*
- *Restoration of mobility, elasticity, reduction of pain, increase of muscle strength, increase of neuromuscular fitting, endurance and functionality. Application of appropriate physiotherapy tests and evaluation tools as well as selection of means, techniques and aids for prevention and physiotherapy rehabilitation.*
- *Rehabilitation program. Examples and applications from students. Student evaluation.*

### **Section 13. Upright posture - Pathological gait**

- *Posture assessment Pathological gait assessment: Clinical assessment skills.*

- Stages of treatment. Evaluation of joints, pain, general restrictions.
- Rehabilitation program. Examples and applications from students. Student evaluation.

#### Section 14. Final Assessment of students

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course, as mentioned below.

#### TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>Theoretical part</p> <p>many teaching techniques and means are included, including:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> </ul> <p>Practical part</p> <p>The laboratory part of the course is carried out in the lab with the use of nursing, laboratory, and clinical equipment:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques applied to the rehabilitation of the patient</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	39h
	Practical Practice	26h
	Study of bibliography	60h
	Course total (25 hours workload per credit unit)	<b>125 h (5 ECTS)</b>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course: <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 50% of the final score (weighting factor 0.5).</p> </li> <li>• for the practical part of the course: <p>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by the daily laboratory presence of the student and is calculated equally by the grade he/she collects in each practical</p> </li> </ul>	

action he/she performs. The severity of the final examinations in the laboratory part corresponds to 50 % of the final score (weight factor 0.5).

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## 2.2.5 ASSESSMENT IN PHYSIOTHERAPY- CLINICAL REASONING

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>		
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>		
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>		
<b>COURSE CODE</b>		<b>SEMESTER</b>	<b>4<sup>th</sup></b>
<b>COURSE TITLE</b>	<b>ASSESSMENT IN PHYSIOTHERAPY- CLINICAL REASONING</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
<b>LECTURES</b>		<b>3</b>	<b>5</b>
<b>TUTORIALS</b>		<b>2</b>	
<b>COURSE TYPE</b>	<b>SPECIAL CORE COURSE</b>		
<b>PREREQUISITE COURSES:</b>	<b>NO</b>		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	<b>GREEK</b>		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	<b>YES</b>		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and laboratory part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. understand the concept and the process of clinical/professional reasoning in physiotherapy and how it relates to decision making</li> <li>2. apply the process of reflection during the practice of physiotherapy</li> <li>3. conduct a systematic assessment of a patient and discern the various problems arising from various systems</li> <li>4. apply assessment tools (questionnaires, scales, instruments, etc.) for recording subjective and objective findings, while being able to recognize possible weak points in the examination or treatment and to proceed to develop the appropriate tools.</li> <li>5. complete a differential diagnosis of their patients, detect comorbidities and suggest evidence-based and effective treatment protocols in complex cases.</li> <li>6. interpret, analyze, compile and judge the research results related to the problem under investigation, select and apply theories, approaches and methods using up-to-date research data in the field of physiotherapy from various and current assessment methods and tools.</li> </ol>

## General Competences

- *Adapting to new situations*
- *Decision-making*
- *Working independently*
- *Team work*

## SYLLABUS

### A. Contents of the theoretical course.

#### Section 1. Introduction to the concept of physiotherapy evaluation.

- *The concept and importance of physiotherapy evaluation. Objectives of physiotherapy evaluation.*
- *General evaluation review (patient history, observation, palpation, physical examination, etc.)*
- *Differences of the F / T evaluation from the medical diagnosis.*
- *Key points in the F / T evaluation that require immediate referral to the doctor*
- *The role of differential diagnosis in Physiotherapy*
- *Ways and methods of recording the data being evaluated*
- *Scientific documentation of assessment techniques and tools in general in Physiotherapy*

#### Section 2. Clinical reasoning and problem solving I.

- *Introduction to the process of clinical reasoning and decision making in physiotherapy.*
- *Decision-making models, reasoning and problem-solving strategy.*
- *Recognition of patterns in the process of clinical reasoning*
- *The importance of patient categorization*

#### Section 3. Clinical reasoning and problem solving II.

- *Theoretical approaches to clinical reasoning and decision making in physiotherapy.*
- *The hypothetical-productive approach.*
- *Inductive or insightful approach*
- *Integration of knowledge – reasoning*

#### Section 4. Clinical Reasoning and Problem Solving III.

- *Clinical reasoning learning techniques*
- *Differences of clinical reasoning in different categories of patients (musculoskeletal, neurological, cardiorespiratory, etc problems)*
- *The physiotherapist-patient relationship during the evaluation*
- *Problems communicating with the patient.*
- *Advanced data mining techniques (neural networks) in patient evaluation and their role in decision making*

#### Section 5. Subjective evaluation. Evaluation of pain

- *Means provided to the physiotherapist for the implementation of subjective evaluation (taking the history, completing questionnaires, pain scales, observation, clinical picture).*
- *Evaluation of acute and chronic pain*
- *Organic and non-organic pain*
- *Individual dimensions and mechanisms of pain*
- *Clinical and scientific (laboratory) ways and methods of pain assessment,*
- *Scientific documentation of techniques and means of pain assessment and collection of subjective data, reliability and validity.*

#### Section 6. Collection of objective findings.

- *Methods and techniques for collecting objective findings (review, palpation, listening, movement, neurological examination, special tests, etc.). Criteria for their selection in the F / T evaluation*
- *Scientific documentation of the above techniques and means of collecting objective findings, reliability and validity.*

### **Section 7. Evaluation of standing posture, gait (normal and pathological), balance.**

- *Evaluation of the posture and deviations from the normal. Clinical and scientific (laboratory) ways and methods of evaluating the posture.*
- *- Balance assessment and rating scales. Clinical and scientific (laboratory) ways and methods of balance*
- *Evaluation of gait. Clinical and scientific (laboratory) ways and methods of gait evaluation*
- *- Scientific documentation of the clinical and laboratory techniques and means of assessment of posture, balance and gait used in Physiotherapy, reliability and validity.*

### **Section 8. Evaluation of Muscular Functional Ability I.**

- *Evaluation of the patient's strength and endurance. Clinical and scientific (laboratory) ways and methods of evaluating strength and endurance as well as muscle performance.*
- *Evaluation of strength and endurance through the evaluation of the transverse diameter of muscles using diagnostic ultrasound and through the use of electromyograph*
- *Scientific documentation of the techniques and means of evaluation of strength and endurance used in Physiotherapy, reliability and validity.*

### **Section 9. Evaluation of Muscular Functional Ability II**

- *Evaluation of tone and elasticity - shortening of musculoskeletal structures*
- *Evaluation of muscle length and muscle imbalances*
- *Evaluation of movements, range of motion*
- *Clinical and scientific (laboratory) ways and methods of assessing tone, elasticity and range of motion.*
- *Scientific documentation of the techniques and means of assessing the tone, elasticity and range of motion used in Physiotherapy, reliability and validity.*

### **Section 10. Evaluation and specificity of somatosensory knowledge.**

- *Evaluation of sensory knowledge (dermatomes, sensory distribution of peripheral nerves) and specificity (kinesthesia, reproduction of articular angle, etc.)*
- *Synergy evaluation and motor control*
- *Evaluation of nerve tissue and reflexes*
- *Neurodevelopmental assessment*
- *Clinical and scientific (laboratory) ways and methods of evaluation of the above*
- *Scientific documentation of the techniques and means of assessment used in Physiotherapy, reliability and validity.*

### **Section 11. Evaluation of functional capacity and daily activities. Evaluation of pathological motor patterns**

- *Clinical and scientific (laboratory) ways and methods of evaluating patient function*
- *Specialized function tests depending on the disease, activity, age group, etc.*
- *Clinical and scientific (laboratory) ways and methods of evaluation of pathological motor patterns*
- *Pathological patterns of upper, lower limbs and SS*
- *Scientific documentation of the techniques and means of evaluation of functionality and pathological standards used in Physiotherapy, reliability and validity.*

### **Section 12. Patient evaluation according to international standards**

- *Classification according to the International Classification System of Functioning, Disability and Health of the World Health Organization (International Classification of Functioning, Disability and Health - ICF classification)*
- *Detailed assessment of the patient's incapacity - disability*
- *Various methods - evaluation systems in Physiotherapy (evaluation algorithms in various diseases, etc.)*
- *Analysis and consideration of information from various diagnostic methods (X-Ray, MRI, CT etc)*

### **Section 13. Evaluation and environment**

- *The importance of assessing the environment (home, workplace, social environment, etc.) of the patient*
- *The physiotherapist and the multifactorial team (doctor, psychologist, occupational therapist, etc.) during the evaluation*

- *Differences in the patient evaluation process in different environments (hospital, emergency, at home, in the laboratory, on the field, etc.)*
- *English terminology related to the subject of the course.*

#### **Section 14. Final Assessment of Students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

### **B. Contents of the laboratory course**

#### **Section 1. Introduction to F / T evaluation. Pain assessment**

- *Use of clinical pain assessment tools (questionnaires, indicators, protocols, body map).*
- *Demonstration and use of high technology techniques and methods (algometer, quantitative evaluation of pain) with emphasis on the specifics of patients.*
- *Practical application among students.*

#### **Section 2. Posture evaluation**

- *Use of clinical tools (guide points, body maps, level thread, etc.).*
- *Demonstration and use of high technology techniques and methods (three-dimensional position and posture analysis systems - 3D posture analysis systems, spinal mouse, posture evaluation using a camera, digital cameras, etc.) with emphasis on patient specificities.*
- *Examples and applications. Student evaluation*

#### **Section 3. Balance Assessment**

- *Use of clinical tools (questionnaires, clinical balance tests, observation, etc.).*
- *Demonstration and use of high technology techniques and methods (balance platform, dynamometer, etc.) with emphasis on patient specificities.*
- *Examples and applications. Student evaluation*

#### **Section 4. Evaluation of gait**

- *Use of clinical tools (observation, clinical gait assessment tests, anatomical guide points for gait assessment, etc.).*
- *Demonstration and use of high technology techniques and methods (dynamometer with digital cameras and electromyograph, video analysis, foot barometers, pedometer, etc.) with emphasis on the specifics of patients.*
- *Examples and applications. Student evaluation*

#### **Section 5. Strength assessment**

- *Use of clinical tools (clinical strength measurement tests, protocols, muscle tests, etc.).*
- *Demonstration and use of high technology techniques and methods (mechanical and digital dynamometers, hand dynamometers, isokinetic dynamometer, electromyograph, respiratory muscle strength devices, diagnostic ultrasound, etc.) with emphasis on the specifics of patients.*
- *Examples and applications. Student evaluation*

#### **Section 6. Evaluation of endurance - fatigue**

- *Use of clinical tools (clinical tests to measure endurance, protocols, questionnaires, etc.).*
- *Demonstration and use of high technology techniques and methods (isokinetic dynamometer, heart rate monitors, electromyograph, floor ergometers, respiratory muscle strength devices, ergometers, diagnostic ultrasound, etc.) with emphasis on the specifics of patients.*
- *Examples and applications. Student evaluation*

#### **Section 7. Evaluation of elasticity - range of motion**

- *Use of clinical tools (clinical elasticity tests, simple protractors, questionnaires, tape measure, etc.).*

- *Demonstration and use of high technology techniques and methods (electrometers, 3D motion analysis systems with ultrasound and digital cameras, etc.) with emphasis on the specifics of patients.*
- *Examples and applications. Student evaluation*

### **Section 8. Sensory evaluation**

- *Use of clinical tools (clinical tests to assess susceptibility, kinesthesia, stereo knowledge, sensory, etc.).*
- *Demonstration and use of high-tech techniques and methods for assessing susceptibility (3D articulated angle devices, electrogoniometers, isokinetic dynamometer, electromyograph, motion analysis systems, dynamometer, devices, etc.) with emphasis on patient specificities.*
- *Examples and applications. Student evaluation*

### **Section 9. Evaluation of motor control - synergy - nerve tissue - reflexes**

- *Use of clinical tools (clinical tests of motor control and muscle synergy, observation, palpation).*
- *Demonstration and use of high technology techniques and methods (video analysis, 3D motion analysis systems, etc.) with emphasis on patient specificities.*
- *Demonstration and use of clinical tools (clinical evaluation of nerve tissue and reflexes).*
- *Examples and applications. Student evaluation*

### **Section 10. Evaluation of functionality and pathological motor patterns**

- *Use of clinical tools (clinical function tests, ways of identifying abnormal motor patterns, questionnaires, observation, etc.).*
- *Demonstration and use of high technology techniques and methods (video analysis, 3D motion analysis systems, etc.) with emphasis on patient specificities.*
- *Examples and applications. Student evaluation*

### **Section 11. Clinical reasoning I**

- *Practice clinical reasoning with consideration and application of the above sub-units in a representative example of a musculoskeletal patient with the ultimate goal of making a decision and drawing up a treatment plan*
- *Practical application between students in pairs or small groups*
- *Examples and applications. Student evaluation*

### **Section 12. Clinical Reasoning II**

- *Practice clinical reasoning with consideration and application of the above sub-units in a representative example of a neurological patient with the ultimate goal of making a decision and drawing up a treatment plan*
- *Practical application between students in pairs or small groups*
- *Examples and applications. Student evaluation*

### **Section 13. Clinical Reasoning III**

- *Practice clinical reasoning with consideration and application of the above sub-sections in a representative example of a cardiopulmonary patient with the ultimate goal of making a decision and drawing up a treatment plan*
- *Practical application between students in pairs or small groups*
- *Examples and applications. Student evaluation*

### **Section 14. Final Assessment of Students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>
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<p><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b></p>	<p><i>Theoretical part</i></p> <p>many teaching techniques and means are included, including:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> </ul> <p><i>Practical part</i></p> <p>The laboratory part of the course is carried out in the lab with the use of nursing, laboratory, and clinical equipment:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques applied to the rehabilitation of the patient</li> </ul>											
<p><b>TEACHING METHODS</b></p>	<table border="1"> <thead> <tr> <th><b>Activity</b></th> <th><b>Semester workload</b></th> </tr> </thead> <tbody> <tr> <td><i>Lectures</i></td> <td>39h</td> </tr> <tr> <td><i>Clinical Practice</i></td> <td>26h</td> </tr> <tr> <td><i>Study of bibliography</i></td> <td>60h</td> </tr> <tr> <td><i>Course total (25 hours workload per credit unit)</i></td> <td>125 h (5 ECTS)</td> </tr> </tbody> </table>	<b>Activity</b>	<b>Semester workload</b>	<i>Lectures</i>	39h	<i>Clinical Practice</i>	26h	<i>Study of bibliography</i>	60h	<i>Course total (25 hours workload per credit unit)</i>	125 h (5 ECTS)	
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<i>Course total (25 hours workload per credit unit)</i>	125 h (5 ECTS)											
<p><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the practical part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by the daily laboratory presence of the student and is calculated equally by the grade he/she collects in each practical action he/she performs. The severity of the final examinations in the laboratory part corresponds to 30 % of the final score (weight factor 0.3).</p>											

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- Suggested bibliography:

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**3. 3<sup>rd</sup> YEAR**

**3.1 5<sup>th</sup> SEMESTER**

**3.1.1 ELECTROPHYSICAL AGENTS IN PHYSIOTHERAPY**

<b>SCHOOL</b>	<b>SCHOOL OF HEALTH SCIENCES</b>
<b>ACADEMIC UNIT</b>	<b>PHYSIOTHERAPY</b>
<b>LEVEL OF STUDIES</b>	<b>UNDERGRADUATE</b>

<b>COURSE CODE</b>		<b>SEMESTER</b>	5 <sup>th</sup>
<b>COURSE TITLE</b>	<b>ELECTROPHYSICAL AGENTS IN PHYSIOTHERAPY</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		2	5
TUTORIALS		2	
<b>COURSE TYPE</b>	<b>SPECIAL CORE COURSE</b>		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

### LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and laboratory part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. describe the theories that support the application of electrophysical means,</li> <li>2. evaluate current research findings in the field of application of electrophysical means,</li> <li>3. select the most suitable natural or electrophysical means for each patient, considering the patient's history but also their indications and contraindications,</li> <li>4. handle the selected electrophysical means safely each time,</li> <li>5. analyze the results of the application of electrophysical means with confidence,</li> <li>6. apply every natural and electrophysical means based on the particularities of the disease and of the patient.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Adapting to new situations</li> <li>• Decision-making</li> <li>• Working independently</li> <li>• Team work</li> </ul>

### SYLLABUS

<p><b>A. Contents of theoretical course.</b></p> <p><b>Section 1. Introduction to Electrophysical agents and their usefulness</b></p> <p>- Presentation of electrophysical agents and their classification according to their origin and therapeutic effect. Explanation of injuries.</p>	
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## Section 2. Cryotherapy

- *Utility. Physiological reactions to temperature lowering. Hunting response. Application techniques.*
- *Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case. Thermotherapy versus cryotherapy.*

## Section 3. Injury healing. Thermotherapy (general)

- *Mechanisms and process of wound healing. How electrophysical means and their application are related to it.*
- *Physiological reactions of the human body to the rise in temperature. Indications and contraindications of heat therapy. General application instructions.*

## Section 4. Methods of superficial heat therapy

- *Special methods of applying superficial contact heat therapy (hot dino bath, paraffin bath, thermal baths, hot pads, low level heat wrap).*
- *Special methods of application of superficial heat therapy with radiant heat (light / non-luminous infrared generator, ultraviolet generator).*
- *Physiological reactions, application parameters, indications and contraindications, modes of operation of devices. Attention points in the application / risks. Clinical efficacy of each of them in relation to the respective clinical case.*

## Section 5. In-depth heat therapy methods. Diathermy

- *Special methods of in-depth application of heat therapy (capacitive / inductive short-wave diathermy, pulsed emission short-wave diathermy, continuous and pulsed microwave diathermy). Differences between species. Modes of operation of devices.*
- *Physiological reactions with any type of diathermy. Parameters and application techniques. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of them in relation to the respective clinical case.*

## Section 6. In-depth heat therapy methods. Therapeutic Ultrasound

- *Sound waves. Ultrasonic wave production technique.*
- *Special methods of application of ultrasound (continuous and pulsed emission, by contact / distance). Bladder technique.*
- *Physiological reactions with any type of ultrasound application (thermal / non-thermal results).*
- *Application parameters. Indications and contraindications for application. Modes of operation of devices. Attention points in the application / risks. Clinical efficacy of each of them in relation to the respective clinical case. Comparison with other means of heat therapy.*

## Section 7. Use of ultrasound as a non-thermotherapeutic method

- *Application parameters and the normal reactions they cause in human tissues. Drugs used in the method.*
- *Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*
- *Combined application of ultrasound and electrical muscle stimulation. Usefulness of the method. Action mechanism.*
- *Techniques for applying the combination of ultrasound / electrical muscle stimulation. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*
- *Illustrative use of ultrasound.*

## Section 8. Shock waves. Deep oscillation

- *Definition and mode of action of shock waves. Usefulness of the method. Application parameters and the normal reactions they cause in human tissues.*
- *Shock wave application techniques. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*
- *Deep oscillation. Definition and mode of action. Application techniques. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*

## Section 9. Laser Radiation. Polarized light

- *Name and physical characteristics of Laser radiation. Types of Laser beams and their mechanism of action. Usefulness of the method. Application parameters and the normal reactions they cause in human tissues.*

- *Laser radiation application techniques. Indications and contraindications for application. Modes of operation of devices. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*
- *Characteristics of polarized light and its mechanism of action. Usefulness of the method. Application parameters and the normal reactions they cause in human tissues.*
- *Techniques for applying polarized light. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*

### **Section 10. Electromagnetic fields**

- *Mechanism of action and physiological effects on human tissues. Healing properties. Application parameters.*
- *Techniques of application of the method. Modes of operation of the devices. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case. Magnetophoresis.*

### **Section 11. Treatment using TECAR Radio Frequencies**

- *Operation principles*
- *Mechanism of action and physiological effects on human tissues. Healing properties. Application parameters.*
- *Diseases in which it is more applicable and effective.*
- *Techniques of application of the method. Modes of operation of the devices. Indications and contraindications for application. Attention points in the application / risks. Clinical efficacy of each of the application techniques in relation to the respective clinical case.*

### **Section 12. Clinical reasoning and creation of therapeutic regimens I**

- *Symptom assessment and choice of means. Therapeutic regimens in acute, subacute and chronic pathological conditions. Character of treatment regimens (analgesia, reduction of muscle spasm, reduction of edema, reduction of joint stiffness, increase of muscle strength, delay of muscle atrophy).*
- *Primary / secondary action of electrophysical means. Sequence of application of therapeutic operations. Treatment protocols.*

### **Section 13. Clinical reasoning and creation of therapeutic regimens II**

- *Creation of treatment regimens in selected cases. Understanding the usefulness of each electrophysical means and their combinations to achieve a specific result depending on the respective symptoms.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of Students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## **B. Contents of the laboratory course.**

### **Section 1. Introduction to Electrophysical Media and their usefulness**

- *Usefulness of electrophysical means in rehabilitation therapies.*
- *Demonstration of the means and devices of the laboratory and their classification according to their mechanism of action.*
- *Assessment of students.*

### **Section 2. Methods of applying cryotherapy**

- *Demonstration of cryotherapy application devices and how they work. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application.*
- *Demonstration of creation and application of cold compresses. Demonstration of application methods. Ice massage application. Indications - contraindications. Ways to avoid mistakes during the application. Application of all the above methods by the students in groups in selected cases for each group.*
- *Assessment of students.*

### **Section 3. Methods of superficial contact heat therapy I**

- *Demonstration of hot pad devices and how they work. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*

- *Demonstration of hot dinosaur appliances and how they work. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

#### **Section 4. Superficial methods of contact heat therapy II**

- *Demonstration of paraffin bath appliances and how they work. Demonstration of ways and techniques of application. Immersion method and application method. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

#### **Section 5. Methods of Superficial heat therapy with radiant heat**

- *Demonstration of light / non-light generators of infrared radiation and how they operate. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of methods by students in groups in selected cases for each group.*
- *Demonstration of ultraviolet generators and how they operate. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

#### **Section 6. Methods of in-depth heat therapy using diathermy**

- *Demonstration of short-wave diathermy devices of continuous transmission, pulsed emission and the mode of operation. Demonstration of application methods. Capacitor field methods - electromagnetic field. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Demonstration of continuous, microwave and microwave diathermy devices. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group. Criteria for selecting a diathermy from all devices depending on the desired clinical result and the application possibilities.*
- *Assessment of students.*

#### **Section 7. Ultrasound application methods**

- *Demonstration of ultrasound devices and how they work. Demonstration of application methods (contact application - remote application). Pulse or continuous application, and the criteria for selecting one of the two modes of application depending on the clinical case. Indications - contraindications. Ways to avoid mistakes during the application. Application of methods by students in groups in selected cases for each group.*
- *Assessment of students.*

#### **Section 8. Use of ultrasound as a non-thermotherapeutic method**

- *Demonstration of ways and techniques of phonophoresis application. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Demonstration of ways and techniques of combined application of ultrasound and electrical muscle stimulation. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

#### **Section 9. Methods of application of shock waves and deep oscillation**

- *Demonstration of shock wave generators and how they operate. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Demonstration of deep oscillation devices and how they work. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

#### **Section 10. Laser and polarized light application methods**

- *Demonstration of laser application devices for physiotherapeutic use and how they work.*
- *Demonstration of application methods (remote area scanning - application with contact per treatment point, application in reflex points). Indications - contraindications. Ways to avoid mistakes during the application.*
- *Criteria for selecting one of the two methods depending on the desired clinical result and the possibilities of application. Application of methods by students in groups in selected cases for each group.*

- *Demonstration of devices for the application of polarized light and how they operate. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

### **Section 11. Methods of application of electromagnetic fields**

- *Demonstration of electromagnetic field generating devices and their mode of operation. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Demonstration of tape recorders and how they work. Demonstration of magnetophoresis application techniques. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Assessment of students.*

### **Section 12. Therapy using TECAR Radio Frequencies**

- *Demonstration of a TECAR radio frequency device and how it operates. Demonstration of application methods. Indications - contraindications. Ways to avoid mistakes during the application. Application of the method by students in groups in selected cases for each group.*
- *Student evaluation*

### **Section 13. Clinical reasoning and creation of therapeutic regimens**

- *Selection of electrophysical means and methods by students, in groups, with the aim of creating and implementing a treatment regimen protocol, for a specific clinical case for each group.*
- *Assessment of students.*

### **Section 14. Final Assessment of Students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## **TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part</i></p> <p><i>many teaching techniques and means are included, including:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</i></li> </ul> <p><i>Practical part</i></p> <p><i>The laboratory part of the course is carried out in the lab with the use of nursing, laboratory, and clinical equipment:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of methods and techniques applied to the rehabilitation of the patient</i></li> </ul>	
<b>TEACHING METHODS</b>	<i>Activity</i>	<i>Semester workload</i>
	<i>Lectures</i>	<i>26h</i>
	<i>Clinical Practice</i>	<i>26h</i>
	<i>Study of bibliography</i>	<i>73h</i>

	Course total (25 hours workload per credit unit)	125 h (5 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weighting factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the practical part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by the daily laboratory presence of the student and is calculated equally by the grade he/she collects in each practical action he/she performs. The severity of the final examinations in the laboratory part corresponds to 30 % of the final score (weight factor 0.3).</p>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

##### **Greek bibliography:**

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2. Μπάκας Ε. Φυσική Ιατρική και Αποκατάσταση, Τόμος II & III, Ιατρικές Εκδόσεις Ζήτα, 1995.
3. Φραγκοράπτης Ε. Εφαρμοσμένη Ηλεκτροθεραπεία, Εκδόσεις SALTO, 2002.
4. Belanger A.Y. Θεραπευτικά Ηλεκτροφυσικά Μέσα: Βιοφυσική και εφαρμογή τους, Εκδόσεις Κωνσταντάρας, 2021.
5. Nanda B.K. Ηλεκτροθεραπεία: Βασικές Αρχές, Εκδόσεις Πασχαλίδης, 2018.
6. Prentice W. Θεραπευτικά Μέσα στην Αποκατάσταση, Εκδόσεις Κωνσταντάρας, 2021.
7. Robertson V., Ward A., Low J., Reed A. Ηλεκτροθεραπεία: Βασικές Αρχές και Πρακτική Εφαρμογή, 4η Έκδοση, Επιστημονικές Εκδόσεις Παρισιάνου, 2011.
8. Watson T. Ηλεκτροθεραπεία: Τεκμηριωμένη Πρακτική, Εκδόσεις Πασχαλίδης, 2011.

##### **English bibliography:**

1. Nelson R.M., Currier D.P., Hayes K.W. *Clinical Electrotherapy*, 3rd Edition, Apleton & Lange, 1999.
2. Fox J., Sharp T. *Practical Electrotherapy. A Guide to Safe Application*, Churchill Livingstone, 2007.
3. Cameron M. *Physical Agents in Rehabilitation: From Research to Practice*, W.B Saunders, 1999.

## 3.1.2 CLINICAL MUSCULOSKELETAL PHYSIOTHERAPY I

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	5 <sup>th</sup>
<b>COURSE TITLE</b>	CLINICAL MUSCULOSKELETAL PHYSIOTHERAPY I		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		2	7
CLINICAL PRACTICE		6	
<b>COURSE TYPE</b>	SPECIALTY MODULE		
<b>PREREQUISITE COURSES:</b>	MUSCULOSKELETAL PHYSIOTHERAPY I		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<b>After completion of the theoretical and clinical part of the course, students will be able to:</b>
<ol style="list-style-type: none"> <li>1. assess musculoskeletal disorders of the extremities and learn to utilize evidence-based knowledge and to develop critical thinking to choose the most appropriate physiotherapeutic method, technique and exercise programme,</li> <li>2. apply safe and appropriate (for each clinical situation) post-operative therapeutic programmes for musculoskeletal injuries and dysfunctions of the upper and lower limbs,</li> <li>3. comprehend the structure of the healthcare service (infrastructure, management, role of each healthcare team member, etc.), where musculoskeletal patients are admitted,</li> <li>4. become familiar and confident with the physiotherapy approach of any kind of orthopedic patient as well as learn how to develop a satisfactory therapist-patient relationship.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Adapting to new situations</li> <li>• Decision-making</li> <li>• Working independently</li> </ul>

- Team work

## SYLLABUS

### A. Contents of theoretical course.

#### Section 1. Introduction to Physiotherapy of Musculoskeletal Problems - Documented Physiotherapy Practice

- Definition of musculoskeletal disease, injury and basic principles of rehabilitation.
- The position of the physiotherapist in the versatile medical-nursing treatment regimen. Management of interprofessional relations and scientific knowledge.
- The importance of physiotherapy and the role of the physiotherapist within the health care team.

#### Section 2. Documented Physiotherapy Practice and clinical patient

- The role of documentation and research evidence in the clinical patient. Integration of the physiotherapist's clinical experience with the best external clinical documentation.
- The student learns to turn his / her cognitive gaps and information needs into specific questions that can be answered.
- The student must be able to discover in the best way the best documentation that answers the above problem and to prioritize items after a systematic review of the article.

#### Section 3. Clinical reasoning and problem solving in the rehabilitation of musculoskeletal diseases. Linking theory to practice

- Decision-making models, reasoning and problem-solving strategy. The process of clinical reasoning and decision making in the rehabilitation of musculoskeletal disorders.
- Hypothesis method - conclusion from subtraction on clinical reality.
- The student is trained in how to detect the patient's problems, in choosing the appropriate means or the appropriate method and technique, and in the planning of rehabilitation.

#### Section 4. Clinical evaluation in the physiotherapy of musculoskeletal injuries and fractures

- The role of evaluation in musculoskeletal problems. Understanding the contribution of evaluation to therapeutic decision making. Evaluation as a means of more effective treatment of the patient.
- Elements of understanding the orthopedic patient evaluation process. Recording and management of subjective, objective and laboratory findings. Recording the therapeutic intervention goals and managing the intervention techniques
- Interpretation of clinical evaluation results and the organization of rehabilitation.

#### Section 5. Osteoarthritis. Clinical case

- Analysis of a clinical case of osteoarthritis: Knee, hip, shoulder, spine, fingers, etc.
- The role of Physiotherapy and the importance of exercise. Physiotherapy evaluation and rehabilitation.
- Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic.

#### Section 6. Lower limb arthroplasty (Clinical cases)

- Analysis of a clinical case from the preoperative to the postoperative stage in knee, hip arthroplasty. Peculiarities of revision in the rehabilitation program.
- The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.
- Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic.

#### Section 7. Arthroplasty of the upper extremity (Clinical cases)

- Analysis of a clinical case from the preoperative to the postoperative stage. Shoulder and elbow arthroplasty. Peculiarities of revision in the rehabilitation program.
- The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.
- Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic. Evaluation and consideration of data for decision making, setting recovery goals.

### **Section 8. Cervical and thoracic spine (Clinical cases)**

- *Clinical case analysis. The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.*
- *Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic. Evaluation and consideration of data for decision making, setting recovery goals.*

### **Section 9. Lumbar spine (Clinical cases)**

- *Clinical case analysis. The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.*
- *Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic. Evaluation and consideration of data for decision making, setting recovery goals.*

### **Section 10. Musculoskeletal problems of the shoulder and elbow (Clinical cases)**

- *Clinical case analysis. The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.*
- *Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic. Evaluation and consideration of data for decision making, setting recovery goals.*

### **Section 11. Musculoskeletal problems of the hand and wrist (Clinical cases)**

- *Clinical case analysis. The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.*
- *Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic. Evaluation and consideration of data for decision making, setting recovery goals.*

### **Section 12. Musculoskeletal problems of the hip and knee (Clinical cases)**

- *Clinical case analysis. The role of Physiotherapy. Physiotherapy evaluation and rehabilitation.*
- *Collection of subjective and objective evaluation data and consideration of data for decision making. Presentation of the research evidence of the intervention techniques and documentation of the choice in the clinic. Evaluation and consideration of data for decision making, setting recovery goals.*

### **Section 13. Upright posture, Pathological gait (Clinical cases)**

- *Posture Assessment: Clinical Assessment Skills.*
- *Mechanisms of control of pathological gait, disorder, deviation, physiotherapeutic evaluation, ways of intervention.*
- *Collection of subjective and objective evaluation data and consideration of data for decision making. Evaluation and consideration of data for decision making, setting recovery goals.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of Students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## **B. Contents of the laboratory course.**

### **Section 1. Introduction to clinical practice, history, patient evaluation**

- *Communication with the rest of the health care team, contribution to the team by the physiotherapist. Communication with patients.*
- *History in orthopedic patients.*
- *Subjective and objective evaluation of an orthopedic patient. Evaluation of reduced joint mobility and overall range of motion, instability and hyperactivity, increased pain, muscle weakness, nerve tissue limitations, etc., as a consequence of musculoskeletal disorders.*
- *Evaluation of elasticity, muscle strength, endurance, trajectory - angulation, soft tissue, nerve tissue, pain, motor behavior in joint pathologies.*
- *Documented physiotherapy practice in clinical practice.*
- *Examples and applications from students.*
- *Assessment of students.*



## **Section 2. Clinical reasoning and problem solving in the rehabilitation of musculoskeletal problems**

- *The student's ability to critically evaluate the results of the physiotherapy practice applied in the clinic.*
- *Decision making based on documented physiotherapy practice.*
- *Examples and applications.*
- *Assessment of students.*

## **Section 3. Muscle tissue and fascia**

- *Muscle tissue and fascia problems. Thoracic fascia, , De Quervain tendonitis, Palpation (Dupuytren contracture).*
- *Tibial compartment syndrome.*
- *Physiotherapy to patients in the clinic: Case assessment, clinical reasoning, physiotherapy intervention techniques.*
- *Examples and applications. Student evaluation.*

## **Section 4. Nerve tissue**

- *Thoracic outlet syndrome. Carpal Tunnel Syndrome.*
- *Physiotherapy to patients in the clinic: Case assessment, clinical reasoning, therapeutic intervention.*
- *Examples and applications. Student evaluation.*

## **Section 5. Connective tissue, tendons, ligaments**

- *Painful conditions from the soft tissues.*
- *Tendonitis of the lateral outer surface of the elbow (tennis elbow). Knee tendon disease. Tendonopathy of Achilles.*
- *Physiotherapy to patients in the clinic: Case assessment, clinical reasoning, therapeutic intervention. Designing a group therapeutic exercise program.*
- *Examples and applications. Student evaluation.*

## **Section 6. Clinical exercise in the patient with osteoarthritis**

- *Complete evaluation of the clinical picture and laboratory findings of a patient with osteoarthritis: case evaluation, clinical reasoning, therapeutic intervention.*
- *Evaluation of the musculoskeletal system. Posture, gait.*
- *Relationship between muscle speed and strength, effect of muscle speed and length on isometric, myometric and pleiometric contraction and their role in rehabilitation.*
- *Design a group therapy exercise program based on the results of patient evaluation.*
- *Examples and applications. Application of the techniques of the selected therapeutic intervention. Student evaluation.*

## **Section 7. Clinical practice in the orthopedic clinic. Arthroplasty in the lower extremity**

- *Complete evaluation of the clinical picture and laboratory findings of a hospitalized patient after hip or knee arthroplasty: case evaluation, clinical reasoning, therapeutic intervention.*
- *Evaluation of the musculoskeletal system. Posture, gait. Functional capacity assessment.*
- *Criteria for patient mobilization or cessation of physiotherapy intervention*
- *Assessment of students.*

## **Section 8. Clinical practice at the Orthopedic Clinic. Arthroplasty in the upper extremity**

- *Complete evaluation of the clinical picture and laboratory findings of a hospitalized patient after shoulder or elbow arthroplasty: case evaluation, clinical reasoning, therapeutic intervention.*
- *Evaluation of the musculoskeletal system. Functional capacity assessment.*
- *Criteria for patient mobilization or cessation of physiotherapy intervention*
- *Assessment of students.*

## **Section 9. Clinical practice at the Orthopedic Clinic. Spine**

- *Complete evaluation of the clinical picture and laboratory findings of a hospitalized patient after spine surgery: case evaluation, clinical reasoning, therapeutic intervention.*
- *Assessment of students.*

## **Section 10. Clinical practice at the Orthopedic Clinic. Shoulder and Elbow**

- *Complete evaluation of the clinical picture and laboratory findings of a hospitalized patient after surgery on the upper extremity: case evaluation, clinical reasoning, therapeutic intervention.*
- *Assessment of students.*

### Section 11. Clinical practice at the Orthopedic Clinic. Hand and Wrist

- Complete evaluation of the clinical picture and laboratory findings of a hospitalized patient after surgery on the extremities: case evaluation, clinical reasoning, therapeutic intervention.
- Assessment of students.

### Section 12. Clinical practice at the Orthopedic Clinic. Hip and knee

- Complete evaluation of the clinical picture and laboratory findings of a hospitalized patient after surgery on the lower extremity: case evaluation, clinical reasoning, therapeutic intervention.
- Assessment of students.

### Section 13. Upright posture and Pathological Gait

- Evaluation and physiotherapy intervention in a patient with abnormal gait. Program design. Patient education. Examples and applications.
- Assessment of students.

### Section 14. Final Assessment of Students

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p><i>Theoretical part</i></p> <p>many teaching techniques and means are included, including:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a whiteboard, a fixed overhead projector, video, and television</li> </ul> <p><i>Practical part</i></p> <p>The clinical practice of the course is carried out in the hospital with the training and guidance of specialized and experienced clinical physiotherapists and with the use of nursing, laboratory, and clinical equipment:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques applied to the rehabilitation of the patient in the hospital</li> </ul>	
	TEACHING METHODS	<i>Activity</i>
Lectures		26h
Clinical Practice		78h
Study of bibliography		71h
	Course total (25 hours workload per credit unit)	<b>175 h (7 ECTS)</b>

<p><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p>The evaluation of students' performance is carried out in accordance with the institution's regulation, and results from the inclusion of the theoretical and laboratory part of the course. The student should complete successfully the theoretical and practical (clinical) part of the module in order to accredited the grade for the module. The evaluation of the student's performance is specified as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>a final written evaluation is carried out which includes questions to elaborate and/or multiple-choice questions. The score is from 0-10. The weight of the final exams in the theoretical part corresponds to 50% of the final score (weighting factor 0.5).</p> <ul style="list-style-type: none"> <li>• for the clinical part of the course:</li> </ul> <p>oral examinations, assignment, presentation and implementation of physiotherapeutic intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of patient evaluation sheets by students. In each course, the teachers evaluate the participation of the student and his/her ability to respond adequately in the treatment of the clinical case to be addressed. The successful or not, intervention used with the guidance of the teacher, is evaluated. Specifically, the examination is based on the patient's ability to approach, the taking of a history, the order in which the evaluation is carried out, the ability to set short- and long-term therapeutic goals and the application of appropriate physiotherapeutic techniques. The student must have successfully completed all specific physiotherapeutic interventions that cover all physiotherapy techniques in each clinic employed. The final exams are oral, where the student is asked to solve practical problems and perform the actions required. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and is calculated equally by the grade he/she collects in each clinical placement he/she performs. The severity of the final examinations in the clinical part corresponds to 50 % of the final score (weight factor 0.5).</p>
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## ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

### Greek bibliography:

1. Γαλανόπουλος Ν.Γ., Βερέττας Δ.Α. Επώδυνες καταστάσεις μαλακών ιστών μυοσκελετικού συστήματος. Εκδόσεις Παρισιάνου, 2001.
2. Κοτζαηλιάς Δ.Α. Φυσικοθεραπεία σε κακώσεις του μυοσκελετικού συστήματος. Εκδόσεις University Studio Press - Ανώνυμος Εταιρία Γραφικών Τεχνών και Εκδόσεων, 2008.
3. Solomon L., Warwick D., Nayagam S. Apley's, σύγχρονη ορθοπαιδική και τραυματιολογία Β: Βασική Ορθοπαιδική. Εκδόσεις Broken Hill Publishers Ltd, 2010.
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5. McRae Ronald. Ορθοπαιδική ΙΙ: Κλινική Εξέταση. Εκδόσεις Broken Hill Publishers Ltd, 2010.

### English bibliography:

1. Atkinson K, Coutts FJ, Hassenkamp AM, Physiotherapy in Orthopaedics: A Problem-Solving Approach, Churchill Livingstone; 2nd ed 2009.
2. Boyling JD, Jull GA, Grieve's Modern Manual Therapy: The Vertebral Column (eds), 3rd edn, Elsevier Churchill Livingstone, Edinburgh, 2004.
3. Edwards I, Jones M, Carr J, Braunack-Mayer A, Jensen GM. Clinical reasoning strategies in physical therapy. Phys Ther. 2004 Apr; 84(4):312-30; discussion 331-5.
4. Hengeveld E, Barks K, Maitland's Peripheral Manipulation (eds), 4th edn, Elsevier Butterworth Heinemann, Edinburgh, 2005.
5. Herbert R, Jamtvedt G, Mead J and Birger Hagen K, Practical Evidence-Based Physiotherapy, Elsevier, Edinburgh, 2005.
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7. *Human Kinetics, Core Assessment Training, (Human Kinetics; Pap/DVD edition, 2010.*
8. *Jeffrey M Gross, Joseph Fetto, and Elaine Rosen, Musculoskeletal Examination, WileyBlackwell; 3rd edition 2009.*
9. *Jensen GM, Gwyer J, Hack LM, Shepard KF. Expert practice in physical therapy. Phys Ther. 2000;80:28-52.*
10. *Kathryn M. Refshauge and Elizabeth M. Gass,(eds) Musculoskeletal physiotherapy : clinical science and evidence-based practice; Oxford : Butterworth-Heinemann, c2004. xi, 305 p. : ill.*
11. *Goodman CC, Snyder TEK, Differential Diagnosis for Physical Therapists: Screening for Referral, 4th ed, Elsevier, St Louis Missouri, 2007.*
12. *Kisner C, Therapeutic Exercise: Foundations and Techniques (Therapeutic Exercise: Foundations & Techniques) F.A. Davis; 5th edition 2007.*
13. *Koes BW, Van Tulder, MW, Thomas S, (2006). Diagnosis and treatment of low back pain. BMJ 332(7555), p.1430-1434.*
14. *Kolt GS, Snyder-Mackler L, Physical Therapies in Sport and Exercise (eds), Churchill-Livingstone, China, 2003.*
15. *Maitland GD, Hengeveld E, Banks K, and English K, Maitland's Vertebral Manipulation (eds), 7th edn, Elsevier Butterworth Heinemann, Edinburgh, 2005.*
16. *Marian Tidswell, Orthopaedic Physiotherapy (Cash's Textbook) Mosby; 1st ed. (1998) pp.264*
17. *McGill Stuart, Low Back Disorders, Human Kinetics Europe Ltd; 2Rev Ed edition (2007).*
18. *Melnyk BM, and Fineout-Overholt E, Evidence-based practice in nursing and healthcare. Philadelphia: Lippincott, Williams and Wilkins, 2005.*
19. *Palastanga N, Soames RW, Field D, Anatomy and Human Movement: Structure and Function (Physiotherapy Essentials) Butterworth-Heinemann; 5th edition (2006).*
20. *Petty NJ, Neuromusculoskeletal Examination and Assessment: A handbook for therapists, 3rd edition, Elsevier Churchill Livingstone, Edinburgh, 2006.*
21. *Petty NJ, Principles of Neuromusculoskeletal Treatment and Management: A Guide for Therapists Churchill Livingstone 2004.*
22. *Porter S, Tidy's Physiotherapy Physiotherapy Essentials, 14th edn Churchill Livingstone, 2008*
23. *23.Resnik L, Jensen GM. Using clinical outcomes to explore the theory of expert practice in physical therapy, Phys Ther. 2003;83:1090-1106.*
24. *Shacklock M, Clinical Neurodynamics: A new system of musculoskeletal treatment, Elsevier Butterworth Heinemann, Edinburgh, 2005.*

## 3.1.3 NEUROLOGICAL ADULT PHYSIOTHERAPY

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	5th
<b>COURSE TITLE</b>	NEUROLOGICAL ADULT PHYSIOTHERAPY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS (ECTS)</b>
LECTURES		3	6
LABORATORY EXERCICES		2	
CLINICAL PRACTICE		1	
<b>COURSE TYPE</b>	SPECIALTY		
<b>PREREQUISITE COURSES:</b>	PRINCIPLES OF NEUROREHABILITATION		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2469/">https://eclass.uop.gr/courses/2469/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and clinical part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. recognizes the physiological and pathological mechanisms of control of posture, movement and balance,</li> <li>2. identifies in detail the various diseases, disorders, deficits and general dysfunctions of the nervous system, as manifested in adult patients accurately;</li> <li>3. describe the type of disorder (upper and peripheral motor neuron damage, extrapyramidal lesion, etc.),</li> <li>4. prioritize primary and secondary problems faster,</li> <li>5. evaluates physiotherapy approaches - treatment systems,</li> <li>6. records motor, stasis, sensory and perceptual disorders in adult neurological patients,</li> <li>7. demonstrates in practice special techniques and means of treatment with confidence,</li> <li>8. handles decisions based on clinical reasoning;</li> <li>9. composes the plan of therapeutic intervention by choosing the appropriate methods and techniques for the treatment of defined problems (problem-solving).</li> </ol>

## General Competences

- *Critical Thinking*
- *Finding and processing information*
- *Decision making*
- *Promoting free, creative and inductive thinking*
- *Production of new research ideas*

## SYLLABUS

### A. Content of the theoretical part of the course

#### Section 1. Principles of physiotherapy evaluation. Clinical examination

- *Basic principles of physiotherapy evaluation of neurological patients. Patient file.*
- *Diagnosis of neurological disorders. Neurological examination.*
- *Neuro-imaging diagnostic methods (computed tomography, magnetic resonance imaging, US, induced dynamics, etc.).*

#### Section 2. Posture control in adults

- *Kinetic - sensory control. Age-dependent changes in posture control systems (musculoskeletal, neuromuscular, and somatosensory system).*
- *Balance retraining (assessment - balance restoration, static control, kinesthesia, strengthening, etc.).*
- *Instability factors. Risk factors for causing falls.*

#### Section 3. Vascular Stroke (SLE) - Hemiplegia

- *Definition. Anatomy - (passion) physiology (cerebral perfusion, mechanism of neuronal damage). Clinical picture stages of the disease. Forecast.*
- *Clinical - laboratory examinations of patients with SLE.*
- *Physiotherapeutic evaluation.*
- *Physiotherapy approach for patients with SEN. Problem solving strategy. Rehabilitation stages.*
- *Physiotherapy care in the intensive care unit. Physiotherapy approach in the chronic stage of rehabilitation.*
- *Concomitant disorders. The shoulder of the hemiplegic patient - evaluation and treatment.*

#### Section 4. Craniocerebral Injury (KEK) - Brain tumors

- *Definition. Epidemiology. Cause. Mechanism of injury. Types of injuries and concomitant injuries (disorders).*
- *Diagnosis, severity and treatment.*
- *Physiotherapeutic evaluation.*
- *Physiotherapeutic approach of patients with KEK Stages of rehabilitation. Problem solving strategy.*
- *Physiotherapy approach to patients with brain tumors. Problem solving strategy.*
- *Physiotherapy care in the intensive care unit. Physiotherapy approach in the chronic stage of rehabilitation.*

#### Section 5. Spinal cord injury - Quadriplegia, Paraplegia

- *Reason. Epidemiology. Pathogenesis. Types of injuries. Concomitant disorders.*
- *Clinical syndromes (central medulla, Brown-Sequard, anterior medulla, medullary cone, hippuroid p.).*
- *Physiotherapeutic evaluation (evaluation tests, ASIA disability scale).*
- *Physiotherapy approach to patients with spinal cord injury. Physiotherapy goals. Problem solving strategy.*
- *Physiotherapy care in the intensive care unit. Physiotherapy approach in the chronic stage of rehabilitation.*
- *Use of special aids (adaptations) and modern technological systems (computer systems, robotics) - training.*

#### Section 6. Peripheral nerve injuries

- *Anatomical and functional characteristics of peripheral nerves. Etiology and classification of peripheral nerve injuries.*
- *Medical and surgical treatment.*
- *Symptoms and diagnosis. Muscle test.*
- *Physiotherapy approach to patients with peripheral nerve injuries. Physiotherapy evaluation (muscle test).*
- *Special therapeutic means and techniques (Biofeedback, electrical muscle stimulation, orthotics, mobilization of nerve tissue, robotic systems, etc.).*

#### Section 7. Multiple Sclerosis (MS)

- *Etiology, epidemiology, pathology (demyelination, plaque distribution, etc.), clinical picture, symptoms.*
- *Medical treatment of MS.*
- *Physiotherapeutic evaluation and approach of patients with MS. Principles of treatment.*

- *Therapeutic means (hydrotherapy, aerobic exercise, stretching, etc.).*

### **Section 8. Extrapyramidal disorders (Parkinson's disease. Huntington's disease - chorea)**

- *Etiology, epidemiology, pathophysiology, clinical picture, symptoms.*
- *Medical treatment for Parkinson's disease. Surgical approach (implants).*
- *Medical treatment of chorea.*
- *Physiotherapeutic evaluation and approach of patients with Parkinson's and chorea. Principles of treatment.*

### **Section 9. Cerebellar Injuries - Ataxia**

- *Definition. Rationale. Anatomical formations and function. Clinical semiology (central - peripheral ataxia). The normal role of the cerebellum and the vestibular system.*
- *Clinical evaluation, measurement and evaluation (tests).*
- *Adapted motor behavior. Adjust posture.*
- *Physiotherapy treatment. Special therapeutic techniques - means (Frenkel, Cawthorne-Cooksey, use of audiovisual commands, assembly exercises, balance platform, etc.).*

### **Section 10. Neuropathies - Polyneuropathy**

- *Etiology, epidemiology, neuropathology, effect on peripheral nerves (axopathies, myelopathies, neuropathies), types of neuropathies - polyneuropathy (mononeuropathy, multiple mononeuropathy, Guillain-Barré etc.), clinical picture.*
- *Physiotherapeutic evaluation. Principles of physiotherapy approach to the various types of neuropathies - polyneuropathy.*

### **Section 11. Neuromuscular disorders - myasthenia gravis**

- *Definition, types (severe myasthenia gravis, Lambert-Eaton syndrome), epidemiology, etiology, symptomatology, course, treatment.*
- *Physiotherapy approach to patients with myasthenia gravis.*

### **Section 12. Chronic neurological diseases beginning in childhood. Special issues**

- *Neurological diseases of childhood - overview (cerebral palsy, CNS disorders, metabolic disorders, craniocerebral injuries, tumors, etc.).*
- *Physiotherapy approach to children with neurological disorders - overview. Interdisciplinary team.*
- *Physiotherapeutic approach of chronic neurological patients starting in childhood. Physiotherapeutic principles. The role of the interdisciplinary team.*
- *The special topics of neurology refer to rare diseases or syndromes which by themselves can not be a separate unit due to their rarity and / or the tendency to eliminate them (eg polio).*
- *Includes diseases of neurological interest and / or systemic diseases that lead to concomitant neurological deficits such as joint problems, muscle weakness, etc.*
- *Medication for neurological diseases and conditions. Medication in: Epilepsy, spasticity, Parkinson's disease, SKP, dyskinesias, S.A.E., pain, neuralgia, K.E.K., disorders of the vestibular system and balance etc.*

### **Section 13. Physiotherapeutic approaches in the rehabilitation of neurological diseases**

- *-Theoretical basis of physiotherapy for neurological diseases. Basic principles of approaches - neurophysiological interpretation.*
- *-The place of physiotherapy in neurological rehabilitation today.*
- *-Neuro-Rehabilitation Methods - Physiotherapy approaches. General description of the approaches - historical background (PNF, Fay, guidance (inductive) training - Peto, reflex mobilization - Vojta, Rood, sensory integration (SI), neurodevelopmental therapy (NDT), Phelps, Collis, Frenkel, Cawnst, Brunthst etc.).*
- *Similarities - differences between approaches. Combination of approaches - physiotherapy techniques (examples).*
- *English terminology related to the subject of the course.*

### **Section 14. Final evaluation of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## **B. Contents of the laboratory part of the course.**

### **Section 1. Principles of Physiotherapy evaluation**

- *Taking the patient's history. Keeping a medical record.*
- *Evaluation of the basic disorders (joint function, muscle strength, muscle tone, balance, coordination, susceptibility, gait).*
- *Evaluation tests in physiotherapy practice (Get Up and Go Test, Functional Reach Test, Berg Balance Scale etc.).*

## **Section 2. Evaluation of posture, balance and gait disorders in adult neurological patients**

- *Evaluation of posture and balance in different neurological conditions. Evaluation tests.*
- *Evaluation of gait in neurological patients. Types of gait (hemiplegic gait, ataxic gait, spastic gait, choroidal ataxic gait, gallop gait, Parkinson's gait, etc.).*
- *In this section there is a demonstration, description and analysis of each type of gait.*

## **Section 3. Special physiotherapy means and rehabilitation techniques in neurological patients**

- *Application of special physiotherapeutic means and techniques. Effect - efficiency.*
- *Electrical stimulation techniques - TENS, muscle electrical stimulation, FES.*
- *Biofeedback.*
- *Hydro-kinesiotherapy (methods: Halliwick, Bad Ragaz etc).*
- *Escalator, suspension systems, balance platforms, etc.*
- *Techniques to facilitate muscle activity and improve movement control: Palms, stretches, compression, vibration, ice, vestibular stimulation, facilitation of movements.*
- *Techniques for normalizing muscle tone and maintaining soft tissue properties: Stretching, ligation, charging, placement, traction, compression, vibration, ice, heat, massage etc.*
- *Special techniques - exercises: Frenkel, Cawthorne-Cooksey etc.*
- *Nerve tissue mobilization - Neurodynamics.*

## **Section 4. Modern technological means in the service of physiotherapy**

- *Interactive motion recognition systems.*
- *Advanced computer and robotic systems for the retraining of static control, movement and handling of objects.*

## **Section 5. Neurodevelopmental intervention model**

- *The neurodevelopmental model today. Theoretical basis of the Neurodevelopmental approach - practical examples.*
- *Facilitation techniques (facilitation of stasis reactions, balance and movements). Proprioceptive and tactile stimulation techniques. Preparation for operation. Demonstration of techniques and practical application.*
- *Integration of techniques in the activities of daily life. Demonstration of techniques and practical application.*

## **Section 6. Detailed Approach**

- *Basic principles - theoretical basis of the analytical approach - practical examples.*
- *The effect of therapeutic exercise on static motor function.*
- *Techniques - methods of physiotherapy intervention based on a detailed model of intervention. Demonstration of techniques and practical application.*

## **Section 7. Proprioceptive Neuromuscular Facility (PNF)**

- *Basic principles - theoretical basis of PNF (brief reference).*
- *Facilitation techniques (diagonal patent, rhythmic stabilization, inversion, etc.). Upper limbs, trunk and lower limbs. Demonstration of techniques and practical application.*

## **Section 8. Kinetic retraining program based on functional goals**

- *Theoretical basis - basic principles (brief reference).*
- *Retraining in functional activities - standards. Description of the activity. Factors affecting performance. Motor dysfunction and training. Application of techniques.*
- *Gait retraining. Description of the activity (walking cycle). Factors affecting performance. Motor dysfunction and training. Demonstration of techniques and practical application.*

## **Section 9. Muscle strengthening in the rehabilitation of neurological diseases**

- *The effect of muscle strengthening on increasing muscle strength, promoting vigor and improving functional abilities.*
- *Application of muscle strengthening techniques in the rehabilitation of neurological diseases. Connection (integration) of muscle strengthening with physiotherapy approaches.*

## **Section 10. Other physiotherapy approaches. Combination-selective approach**

- *Other physiotherapy approaches (Petto, Rood, Perfetti, Feldenkrais etc.) - application of therapeutic techniques.*
- *Basic principles - theoretical basis of the combined selective approach. Demonstration of techniques and practical application.*
- *Synthesis of treatment systems - approaches. Selective vision in therapy (problem solving in defined scenarios).*

## **Section 11. Retraining of the function of the upper limb - hand limb**

- *Upper limb extension and conception (activity description, fine motor skills, manipulations). Motor dysfunction.*



- *Recovery of upper limb function. Practical training adapted to functional goals.*
- *Restrictive-induced (forced) treatment (CIMT-FUT).*
- *Use of special devices for functional training of the limb.*

### **Section 12. Self-care - autonomy of patients with neurological disorders. Quadriplegia - paraplegia**

- *Dependent gait retraining with the use of aids and orthotics (AFO's, guardians, parallel bars, etc.).*
- *Special transportation equipment. Selection - use - demonstration (wheelchairs, walkers, etc.).*
- *Ergonomics and self-service. Use of computer systems and special software.*

### **Section 13. Clinical reasoning and problem solving in the rehabilitation of neurological diseases (introduction). Linking theory with practice and practice with theory**

- *The process of clinical reasoning and decision making in the rehabilitation of neurological diseases. Decision making models, reasoning and problem solving strategy.*
- *Theoretical approaches to clinical reasoning and decision making in the physiotherapy of neurological diseases. The hypothetical-productive approach.*
- *Design of Group Therapeutic Exercise Programs.*

### **Section 14. Final Assessment of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## **C. Contents of the clinical practice of the course.**

### **Section 1. Clinical physiotherapy evaluation in the various stages of rehabilitation**

- *Physiotherapeutic evaluation of patients in the ICU, in the clinics, in the rehabilitation center (eg K.E.K.Y.K.A.M.E.A.), in the physiotherapy clinic etc. Evaluation at each stage of rehabilitation. Performance recording.*
- *Use of special tests - evaluation scales*

### **Section 2. Clinical differential evaluation of neurological patients according to the type of disorder**

- *Physiotherapeutic evaluation of patients with upper and peripheral motor neuron damage, extrapyramidal lesion, cerebellar lesion, etc. Discrimination - differential assessment.*
- *Clinical reasoning and decision-making process for evaluation in special groups of the population (infants, children, the elderly, etc.). Use of special tests - evaluation scales.*
- *Provide written instructions, monitoring and re-evaluation.*

### **Section 3. Management - treatment of muscle tone disorders**

- *Treatment of disorders of muscle tone in lesions of the Upper and Lower Motor Neuron, in Extrapyramidal disorders, etc.*
- *Clinical reasoning and decision-making process in the application of therapeutic techniques and means for the management of disturbed muscle tone in different clinical conditions, age groups and stages of treatment.*
- *Provide written instructions, monitoring and re-evaluation.*

### **Section 4. Management - treatment of disorders of neuromuscular coordination and balance**

- *Treatment of disorders of neuromuscular coordination and balance in different lesions.*
- *Clinical reasoning and decision-making process for the application of therapeutic techniques and means to improve balance and coordination in different clinical conditions, age groups and stages of treatment.*
- *Provide written instructions, monitoring and re-evaluation.*

### **Section 5. Retraining of gait of neurological patients**

- *Retraining of walking in different diseases - damage to the nervous system (CNS, P.N.S. etc.).*
- *Clinical reasoning and decision-making process for the application of therapeutic techniques and means of gait retraining in different clinical conditions, age groups and stages of treatment.*
- *Provide written instructions, monitoring and re-evaluation.*

### **Section 6. Management - treatment of muscle weakness**

- *Treatment of muscle weakness in various diseases - damage to the nervous system (including neuromuscular diseases).*
- *Clinical reasoning and decision-making process for the application of therapeutic techniques and means of increasing muscle strength in different clinical conditions, age groups and stages of treatment.*
- *Provide written instructions, monitoring and re-evaluation.*

### **Section 7. Management - treatment of sensory - perceptual deficits**

- *Treatment of sensory - perceptual deficits in neurological patients (aesthetic perceptual deficits of vision, hearing, kinesthesia, tactile recognition, spatial orientation, etc.).*
- *Clinical reasoning and decision-making process in the application of therapeutic techniques and means in different clinical conditions, age groups and stages of treatment.*

### **Section 8. Mobilization - movement of a neurological patient**

- *Perfection of mobilization techniques in different clinical conditions, age groups according to the rehabilitation stage.*
- *Use of techniques and means of facilitating displacement - transition to different positions.*

### **Section 9. Implementation of a comprehensive physiotherapy approach program by a student**

- *Students present a comprehensive physiotherapy program, adapted to the clinical conditions and the needs of the patient. An interactive discussion - crisis follows.*

### **Section 10. Use of orthotics, prostheses and aids and hospital or other equipment**

- *The student continues his education by perfecting the use of orthotics, prostheses and aids (self-care, transportation), as well as hospital and / or other equipment.*
- *Providing instructions, monitoring and re-evaluation*

### **Section 11. Application of specialized physiotherapy means in neurological patients**

- *Electrical stimulation techniques - TENS, muscle electrical stimulation, FES.*
- *Biofeedback.*
- *Hydrokinetic therapy (special approaches).*
- *Escalator, suspension - support systems, balance platforms, etc.*
- *Advanced computer and robotic systems.*
- *Assessment of students.*

### **Section 12. Application of special therapeutic techniques in neurological patients**

- *Techniques to facilitate muscle activity and improve movement control: Palms, stretches, compression, vibration, ice, vestibular stimulation, facilitation of movements.*
- *Techniques for normalizing muscle tone and maintaining the elasticity of soft tissues: Stretching, bandaging, charging, positioning, pressure, vibration, ice, heat, massage, etc.*

- *Specialized techniques - exercises: Frenkel, Cawthorne-Cooksey etc.*
- *Restrictive-induced (forced) treatment (CIMT).*
- *Nerve tissue mobilization - Neurodynamics. Student evaluation.*

### Section 13. Treatment planning - defining the therapeutic framework. Presentation of clinical cases

- *Clinical reasoning and decision-making process in defining the therapeutic strategy for problem solving.*
- *Approach based on treatment systems (intervention philosophies - physiotherapy methods). Approach adapted to functional goals, holistic approach, combination-selective approach etc.*
- *Designing group therapeutic exercise programs.*
- *Clinical reasoning - research evidence - justification.*

### Section 14. Final Assessment of students

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY</b>	<p><i>The methods of teaching the theoretical part of the course include:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video (DVD) and television.</i></li> <li>• <i>Class discussion and feedback.</i></li> <li>• <i>Individual or group work of students and presentations (optional).</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</i></li> <li>• <i>Invitation of speakers (after approval of the Department).</i></li> </ul> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>Presentation of the subject under treatment (method, technique) by the teacher (demonstration), using a student as a model. Then the students in pairs, study and analyze the problem under the supervision of the teacher.</i></li> <li>• <i>Practical application (simulation) in a specific scenario.</i></li> <li>• <i>Demonstration and application of laboratory equipment.</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory practice</i>	<i>26 hours</i>
	<i>Clinical practice</i>	<i>13 hours</i>
	<i>Study of Bibliography</i>	<i>72 hours</i>
	<i>Course Total</i>	<i>150 hours (6 ECTS)</i>

	<i>(25 hours of workload per credit unit)</i>	
<p align="center"><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory and clinical part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>A final written evaluation is carried out which includes development questions and / or multiple-choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 20% of the final score (weight factor 0.2).</p> <ul style="list-style-type: none"> <li>• for the clinical part of the course:</li> </ul> <p>oral examinations, assignment, presentation and application of the physiotherapy intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of the evaluation sheets of the patients by the students.</p> <p>In each course, the students's participation and their ability to respond adequately to the treatment of the clinical case that is being addressed are evaluated by the teachers. Successful or not, intervention used under the guidance of the teacher is evaluated. Specifically, the examination is based on the patient's ability to approach, the taking of history, the order of the evaluation, his ability to set short-term and long-term therapeutic goals and in the application of appropriate physiotherapy techniques. The student must have successfully completed the set of specific physiotherapy interventions that cover all physiotherapy techniques in each clinic that is employed. The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and are equally calculated by the grade he collects in each clinical placement he performs. The weight of the final examinations in the clinical part corresponds to 10% of the final score (weighting factor 0.1).</p>	

#### ATTACHED BIBLIOGRAPHY

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## 3.1.4 PHYSIOTHERAPY OF THE MUSCULOSKELETAL SYSTEM II

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	5th
<b>COURSE TITLE</b>	PHYSIOTHERAPY OF THE MUSCULOSKELETAL SYSTEM II		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS (ECTS)</b>
LECTURES		3	5
LABORATORY EXERCICES		2	
<b>COURSE TYPE</b>	SPECIALTY		
<b>PREREQUISITE COURSES:</b>	ORTHOPEDICS		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/PTH112/">https://eclass.uop.gr/courses/PTH112/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and laboratory part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. specify the type of tissue involved, the injury and its severity;</li> <li>2. evaluates motor, stasis, motor-sensory, neurodynamic and functional disorders in patients with musculoskeletal injuries accurately,</li> <li>3. develops a rehabilitation program with the appropriate means, methods &amp; techniques of physiotherapy, which will be based on holistic - scientific documentation and at the same time will respond to the individual needs and particularities of each patient,</li> <li>4. analyzes realistic short-term, medium-term and long-term therapeutic goals more precisely,</li> <li>5. determines decisions based on sound clinical reasoning throughout the course of therapeutic intervention with confidence;</li> <li>6. performs clinical skills of assessment and rehabilitation of musculoskeletal injuries &amp; disorders,</li> <li>7. fully defines the findings of the physiotherapy evaluation,</li> </ol>

8. *fully define and implement correctly and safely a therapeutic intervention protocol.*

### General Competences

- *Critical Thinking*
- *Finding and processing information*
- *Decision making*
- *Promoting free, creative and inductive thinking*
- *Production of new research ideas*

## SYLLABUS

### A. Contents of the theoretical part of the course:

#### Section 1. The role of Physiotherapy in the process of tissue healing after a musculoskeletal injury:

- *Understanding the healing process, phases of D.E., the role of therapeutic exercise and Physiotherapy in D.E., factors that make healing difficult.*
- *Parameters of therapeutic exercise in musculoskeletal physiotherapy: The muscular reaction to exercise, the principles of overload, specialized type of loading, reversibility, hypertrophy & hyperplasia.*
- *Clinical exercise protocols: The DeLorme, Oxford, Knight, etc. protocols of isometric exercise, cyclic training, pleiometric exercises and their role in Physiotherapy. Exercise program time periods.*
- *The phenomenon of Delayed onset of muscle pain. Clinical features-symptoms, trigger mechanisms, therapeutic techniques and means of treatment.*

#### Section 2. Evaluation of the musculoskeletal system: YASO

- *Subjective evaluation (S), objective (clinical) evaluation (O), means & techniques of evaluation: Active movements & their modifications, passive physiological movements (end-feel) passive movements, follicular pattern (capsular pattern), muscle strength, range of motion -flexibility-muscle tension-shortening, auxiliary movements (Special Mobilization Techniques-ETK), special tests & integrity tests, balance-synchronization tests, susceptibility tests, kinetic pattern tests}. Consideration of the data (C), Organization of the restoration (O).*
- *Clinical reasoning and problem solving in the rehabilitation of musculoskeletal disorders. Linking theory to practice and practice to theory: The process of clinical reasoning and decision making in the rehabilitation of musculoskeletal disorders. Decision making models, reasoning and problem solving strategy.*

#### Section 3. Physiotherapy for shoulder injuries and disorders

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and phases of rehabilitation, precautionary instructions-relapse prevention in:*
- *Shoulder dislocation,*
- *Instability of the shoulder (one or more directions),*
- *Ruptures & sutures of tendons, rotator cuff, SLAP lesions.*
- *Hypochromic impact syndrome (inside-out),*
- *Injuries of acromioclavicular & sternoid joint.*
- *Static changes - Muscle imbalances (Upper Cross Syndrome, Gothic Shoulders) & their interaction in the etiology of painful musculoskeletal syndromes of the shoulder.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

#### Section 4. Physiotherapy in injuries & elbow disorders

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and phases of rehabilitation, precautionary instructions-relapse prevention in:*
- *Ligament injuries of the elbow (through lateral ligament) & ulnar nerve injury in the elbow,*
- *Post-traumatic elbow stiffness,*
- *Elbow dislocation.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

#### Section 5. Injuries & disorders of the hand & wrist

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and phases of rehabilitation, precautionary instructions-relapse prevention in:*
- *Injuries of flexors & extensor tendons,*

- *Dislocations of the hand,*
- *Peripheral nerve pressure syndromes.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

## **Section 6. Injuries & disorders of the AMSS and the cranio-maxillary & temporomandibular joint**

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in:*
- *Injuries of the neck as a whip,*
- *Types of Neck Pain depending on the causes-sources of challenge (biological-anatomical, neuropathic-analgesic, psychosomatic & social - discogenic & radical syndromes, facet syndrome, neurodynamic changes, etc.).*
- *Static changes - Muscle imbalances (Upper Cross Syndrome, Gothic Shoulders) & their interaction in the etiology of neck pain.*
- *- Kinesiotherapy & therapeutic exercise programs of CS.*
- *Painful syndromes of the cranio-maxillary region & temporomandibular joint (disc displacement & cranio-cervical-maxillary syndrome).*
- *- Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

## **Section 7. Injuries, disorders of the TS, thorax and LS**

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in:*
- *T4 Syndrome & Thoracic outlet syndrome, joint & disc dysfunctions.*
- *Intercostal neuralgia & visceral pain.*
- *Injuries & disorders of the LS*
- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in: Spondylolisthesis, spinal fusion etc.*
- *Discectomy-microdiscectomy and other invasive methods.*
- *Backache, lumbar sciatica, lumbar pelvic pain depending on the causes-sources of challenge (biological-anatomical, neuropathic-analgesic, psychosomatic & social-discogenic & radical syndromes, facet syndrome, stenosis, neurodegenerative).*
- *Static changes - Muscle imbalances (Static changes - Muscle imbalances (Upper Cross Syndrome, Gothic Shoulders) & their interaction in the etiology (Pelvic Cross Syndrome, Layer Syndrome) & their interaction in the etiology & etiopathogenesis.*
- *Kinesiotherapy & therapeutic exercises for partial lumbar pelvic stabilization for the treatment of back pain & lumbar pelvic pain.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

## **Section 8. Pelvic Zone Injuries & Disorders**

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in:*
- *Painful syndromes of the Hieroglyphic joint.*
- *Instability of the Pelvic Zone.*
- *Coccygeal pain & dysfunction of the pubic adhesion.*
- *Muscle injuries (dysfunction of the abdomen-adductor syndrome, pain in the groin).*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

## **Section 9. Injuries & disorders of the hip, injuries of the thigh muscles**

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in:*
- *Intra-articular injuries-pathologies (ruptures of the labial cartilage, ruptures of the round ligament, cartilage lesions, etc.).*
- *Extra-articular injuries-pathologies (opioid syndrome, hip fractures, muscle fractures, trochanteritis, etc.).*
- *Fractures of the hind thigh, adductor muscles, quadriceps muscle.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

## **Section 10. Injuries & disorders of the knee**

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in:*
- *Injuries to the knee joints (Anterior cruciate ligament, posterior cruciate ligament, lateral ligaments).*
- *Injuries of the menisci & rupture of the patellar tendon.*
- *Injuries of the cartilage of the tibia & patella joint.*
- *Dislocation & subluxation of the patella & disorders of the extensor mechanism of the knee joint.*



- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

### **Section 11. Injuries of the ankle Injuries of the muscles & tendons of the gastrocnemius**

- *General principles, classification, mechanisms of injury, clinical picture, physiotherapy evaluation-clinical reasoning, treatment and rehabilitation phases, instructions for prevention-prevention of recurrence in:*
- *Sprains of the ankle & injuries of the tibial ligament.*
- *Chronic ankle instability (mechanical & functional instability).*
- *Rupture of the Achilles tendon & fractures of the gastrocnemius & tibia muscle.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

### **Section 12. The role of posture & spinal deformities.**

- *Standing posture: control mechanisms, disorder, deviation, physiotherapy evaluation, ways of intervention. Spinal deformities: scoliosis, lordosis, kyphosis, flat back, etc. Physiotherapy evaluation and rehabilitation in their conservative, surgical treatment and by age.*
- *Muscle imbalance - The role of muscles in painful musculoskeletal syndromes:*
- *Functional assessment & treatment of muscle imbalance and motor patterns. Clinical muscular imbalance syndromes CS, upper extremity, OMSS, lower extremity.*
- *-Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*

### **Section 13. Injuries-Diseases of the peripheral nerve**

- *Etiology of diseases-injuries of the peripheral nervous system. Classification of injuries according to Seddon and Sunderland (neurosurgery, excision, neurotransmission) clinical assessment & image of plexuses & peripheral nerves, recovery process, PV treatment & PV phases of rehabilitation depending on the treatment of choice and the stage of healing.*
- *Peripheral nerve entrapment syndromes: Pathomechanics and provocation mechanisms, clinical picture, basic principles and progress of the F / T rehabilitation of the most important peripheral nerve entrapment syndromes.*
- *Presentation, analysis & clinical reasoning according to the philosophy of the problem solving approach on relevant clinical cases (virtual or real case studies) that the students dealt with in the laboratory part of the course.*
- *English terminology related to the subject of the course.*

### **Section 14. Final evaluation of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course:**

### **Section 1. Training of the basic principles & laboratory application of a standard clinical reasoning for evaluation & treatment of the musculoskeletal patient**

- *Assessment: students are trained in the correct & structured reception of the patient's history (subjective information, patient's symptoms) then in the hierarchy of the key key points of the history that lead to the formation of "work cases". The working hypotheses in turn function as an extension of the subjective elements and lead to a significant degree to the correct & targeted objective examination. The sequence of training & laboratory application is as follows:*
- *Receiving subjective information-history.*
- *Elaboration & prioritization of the subjective data-information that lead to the elaboration of "scenario or work scenarios" that guide the objective examination.*
- *Objective examination that includes in order. A. Observation of posture, deformations, etc., B. Observation of gait & functional activities. C. Examination of active movements (and their modifications), passive physiological movements (end-feel), passive movements, muscle strength, special tests & integrity tests, passive auxiliary movements (ETC), evaluation of motor patterns & palpation.*
- *Consideration & prioritization of the clinical Subjective, Objective and Laboratory findings of the main points and deficits of the patient who leads,*
- *In the organization of a targeted treatment plan that focuses on the main points of the patient's symptoms & deficits.*
- *Implementation of targeted therapeutic interventions and their immediate re-evaluation for confirmation-modification or rejection of the clinical scenario.*
- *With the completion of this sequence, the initial treatment plan is formed that aims to address the deficits, dysfunctions & problems of the patient as they are hierarchized & classified by the evaluation-clinical reasoning.*
- *Therapeutic plan: Laboratory training in tools and techniques aimed at improvement — treatment of pain, edema, neuromuscular obstruction, muscle weakness, joint & periarticular stiffness or hyperactivity, muscle spasms, muscle spasms, standards, gait & functional performance.*

## **Section 2. Physiotherapy for shoulder injuries and disorders**

- *Laboratory case study study, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: Shoulder dislocation, instability (one or multiple directions) of the shoulder, ruptures & sutures of tendons, rotator cuff, SLAP lesions, subchomic impact syndrome (inside-out), Acromioclavicular & sternal joint injuries, stasis changes - muscular imbalances (Upper Cross Syndrome, Gothic Shoulders) & their interaction in the etiology of painful musculoskeletal syndromes of the shoulder.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

## **Section 3. Physiotherapy for elbow injuries & disorders**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: ligament injuries of the elbow (through lateral ligament) & ulnar nerve injury in the elbow, post-traumatic elbow stiffness, elbow dislocation.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

## **Section 4. Injuries & disorders of the hand & wrist**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: Injuries of the flexors & extensor tendons, dislocations of the hand, pressure syndromes of peripheral nerves.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

## **Section 5. Injuries & disorders of the AMSS and the cranio-maxillary & temporomandibular joint**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: Injuries of the neck at the whip, types of neck pain depending on the causes-sources (biological-anatomical, neuropathic-analgesic, psychosomatic & social-discogenic syndromes & , facet syndrome, neurodynamic changes, etc.). Static changes - Muscle imbalances (Upper Cross Syndrome, Gothic Shoulders) & their interaction in the etiology of neck pain. Kinesiotherapy & therapeutic exercise programs of AMSS. Painful syndromes of the craniofacial region & temporomandibular joint (disc displacement & cranio-cervical-maxillary syndrome).*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

## **Section 6. Injuries, disorders of the THMS & chest**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: 14 Syndrome & Thoracic Outlet Syndrome, joint & disc dysfunctions. Intercostal neuralgia & visceral pain.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

### **Section 7. Injuries & disorders of OMSS**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *The case studies can be either virtual or real, and the topics include: Spondylolisthesis, spinal fusion etc. Discectomy-microdiscectomy and other invasive methods. Backache, lumbar sciatica, lumbar pelvic pain depending on the causes-sources of challenge (biological-anatomical, neuropathic-analgesic, psychosomatic & social-discogenic & radical syndromes, facet syndrome, stenosis, neurodymphalopathy).*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

### **Section 8. Injuries & disorders of the OMSS**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: Static changes - Muscular imbalances (Static changes - Muscular imbalances (Upper Cross Syndrome, Gothic Shoulders) & their interaction in its etiology (Pelay Cross Syndrome, L Syndrome) & their interaction in the etiology of back pain & pelvic pain. Kinesiotherapy & therapeutic exercises of partial lumbar stabilization for the treatment of back pain & pelvic pain.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

### **Section 9. Injuries & disorders of the hip, injuries of the thigh muscles**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: Intra-articular injuries-pathologies (ruptures of the labial cartilage, ruptures of the round ligament, cartilage lesions, etc.). Extra-articular injuries-pathologies (opioid syndrome, cracking)*

### **Section 10. Injuries & disorders of the knee**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include:*
- *Injuries to the knee joints (Anterior cruciate ligament, posterior cruciate ligament, lateral ligaments). Meniscus injuries & rupture of the patellar tendon.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

### **Section 11. Injuries & disorders of the knee**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *Case studies can be either fictitious or real, and the topics include: Injuries to the cartilage of the tibia & patella. Patellar dislocation & subluxation & disorders of the extensor mechanism of the knee joint.*
- *The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.*
- *At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their fellow students.*

### **Section 12. Ankle Injuries Injuries to the Muscles & Tendons of the Tibia**

- *Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.*
- *The case studies can be either fictitious or real, and the topics include: Ankle sprain & tibial ligament injuries. Chronic instability of the ankle (mechanical & functional instability). Rupture of the Achilles tendon*

- The case studies are presented by a default group of students and the rest of the students participate in the laboratory practice under the supervision and guidance of the teacher.
- At the end of the laboratory course follows, a brief discussion, evaluation & feedback of the performance of students by the teacher and their classmates. Fractures of the gastrocnemius & tibia muscle.

### Section 13. The role of posture & spinal deformities. Muscle Imbalance - The Role of Muscles in Painful Musculoskeletal Syndromes

- Laboratory presentation, practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach described above in Unit 1 of the laboratory part.
- Case studies can be either fictitious or real, and the topics include: Spinal deformities: scoliosis, lordosis, kyphosis, flat back, etc. Functional assessment & treatment of muscle imbalance and motor patterns. Clinical muscular imbalance syndromes A.MSS, upper extremity, OMSS, lower extremity.

### Unit 14. Final evaluation of students

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE			
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>The methods of teaching the theory of the course include:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>• Class discussion and feedback.</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</li> </ul>			
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>		
	Lectures	39 hours		
	Laboratory practice	26 hours		
	Study of bibliography	60 hours		
	Course total (25 hours of workload per credit unit)	125 hours (5 ECTS)		
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul>			

	<p>A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 50% of the final score (weight factor 0.5).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 50% of the final score (weight factor 0.5).</p>
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## ATTACHED BIBLIOGRAPHY

### Suggested bibliography:

#### Greek:

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2. Brotzman, S.B., Wilk, K.E. Clinical Orthopaedic Rehabilitation, Mosby, 2003.
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## 3.1.5 BIOSTATISTIC OPERATING SYSTEMS

<b>SCHOLL</b>	SCHOLL OF HEALTH SCIENCE		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	SPRING
<b>COURSE TITLE</b>	BIOSTATISTIC OPERATING SYSTEMS		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		3	4
LABORATORY EXERCICES		1	
<b>COURSE TYPE</b>	GENERAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/.</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<b>Learning objectives of the theoretical and laboratory part:</b>
<ol style="list-style-type: none"> <li><i>The analysis and solution of simple statistical problems in the workplace by using certain parts of statistics without the theoretical origin and proof of types and mechanisms, but with particular weight in their applications. Familiarity and use of functional biostatistics systems and dysfunction syndromes in athletes (described in detail in the individual sections).</i></li> </ol>
<b>General Competences</b>

- *Critical Thinking*
- *Finding and processing information*
- *Decision making*
- *Promoting free, creative and inductive thinking*
- *Production of new research ideas*

## **SYLLABUS**

### **A.Contents of the theoretical part of the course**

#### **Section 1. Experimental - quantitative research in Physiotherapy II - Introduction to Biostatistics**

- *Data collection methods - Scientific tools Variables (independent, dependent, intervening).*
- *Measuring scales.*
- *Basic concepts of Biostatistics and Biometrics.*
- *Object and use of statistics.*
- *Statistics in health research.*

#### **Section 2. Statistical Analysis and Interpretation of Results I.**

- *Probabilities - Distribution parameters.*
- *Allocation position measures.*
- *Various distributions*

#### **Section 3. Statistical Analysis and Interpretation of Results II**

- *Average value, standard deviation.*
- *Measures of asymmetry, Slope, Bending.*
- *Descriptive statistics.*

#### **Section 4. Statistical Analysis and Interpretation of Results III**

- *Parametric and non-parametric data.*
- *Basic statistical tests for data analysis.*
- *Correlation between variables.*
- *Scatter variance analysis.*
- *Error in search.*

#### **Section 5. Qualitative - descriptive research in Physiotherapy I**

- *Procedure for conducting qualitative research.*
- *Internal and external validity in qualitative research.*
- *Data collection tools.*

#### **Section 6. Qualitative - descriptive research in Physiotherapy II**

- *Construction of questionnaires - ranking scales.*
- *Correlation research.*
- *Case study.*

#### **Section 7. Non-parametric tests**

- *Chi-square.*



**Section 8. Analysis of variance**

- ANOVA.

**Section 9. Statistical Significance Tests Using Operating Systems I.**

- T-test.

**Section 10. Statistical Significance Tests Using Operating Systems II**

- S.P.S.S.

**Section 11. Simple linear regression**

- Evaluation of results reliability.
- adjusted R2, goodness of fit measures.

**Section 12. Multiple linear regression**

- Multiple linear regression applications.

**Section 13. Presentation of results**

- Reporting qualitative and quantitative data.
- English terminology related to the subject of the course.

**Section 14. Final evaluation of students****TEACHING and LEARNING METHODS - EVALUATION**

DELIVERY	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>The methods of teaching the theory of the course include:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>• Class discussion and feedback.</li> </ul> <p>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</p>	
<b>TEACHING METHODS</b>	<i>Activity</i>	<i>Semester Workload</i>
	Lectures	39 hours

	<i>Laboratory practice</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>48 hours</i>
	<i>Course total</i> <i>(25 hours of workload per credit unit)</i>	<i>100 hours (4 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</i></p> <ul style="list-style-type: none"> <li><i>• for the theoretical part of the course:</i></li> </ul> <p><i>A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</i></p> <ul style="list-style-type: none"> <li><i>• for the laboratory part of the course:</i></li> </ul> <p><i>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</i></p>	

#### ATTACHED BIBLIOGRAPHY

*Suggested bibliography:*

1. *Bowers D. Θεμελιώδεις έννοιες στη Βιοστατιστική, Broken Hill Publishers LTD, 2011.*
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## 3.1.6 HEALTH INFORMATICS

<b>SCHOOL</b>	SCHOOL HEALTH SCIENCE		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	5th
<b>COURSE TITLE</b>	HEALTH INFORMATICS		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		2	3
LABORATORY EXERCISE		1	
<b>COURSE TYPE</b>	GENERAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>	NO		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and clinical part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. To know the basic concepts of Information Science and the evolution of computer technology,</li> <li>2. know the basic functions of the electronic health record,</li> <li>3. to know the basic principles of operation of the basic Biomedical technology,</li> <li>4. be able to use the World Wide Web to search for and find health information;</li> <li>5. to develop critical thinking about how to use computers in the field of health.</li> </ol>

6. search for valid information on the various links on the World Wide Web,
7. create and edit a text document using Microsoft Word;
8. present a task using graphics and effects using Microsoft Powerpoint;
9. solve basic biostatistics problems through Microsoft Excel;
10. build and process a database through Microsoft Access.

### General Competences

- Search, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations.
- Production of new research ideas.
- Promoting free, creative and inductive thinking.

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Health Informatics over time

- Historical development and main branches of medical informatics.
- Relation to other scientific fields such as computer science, biostatistics, biomedical engineering and public health.
- Historical development of the internet.
- Important scientific communities, medical journals, conferences and exhibitions.

#### Section 2. Special introductory topics in Health Informatics

- IT health terminology, classification and coding systems.
- Standards used in IT.
- Different types of knowledge sources available in the field of health.

#### Section 3. Structure and functions of Health Information Systems

- Representation of patient health data in health information systems.
- The concept of information system-integrated information systems.
- Structure and functions of hospital information systems.
- Standards of hospital information systems.
- Artificial intelligence systems.

#### Section 4. Structure and functions of the Electronic Patient File

- Evolution and levels of the patient file, health record terminology.
- Structure and functions of the electronic health file.
- Security Issues.
- Electronic health record standards.

#### Section 5. Applied Electronic Patient Records

- Applications at Greek and International level.
- New trends in the electronic health record.

#### Section 6. Support for Diagnostic Medical Decisions

- Basic approaches developed to support diagnostic medical decisions.

### **Section 7. Electronic Prescribing**

- *Applications at Greek and International level.*

### **Section 8. Electronic medical-financial decision making**

- *Principles of activity-based financing.*
- *DRGs (Diagnosis related groups-DRG) applications.*
- *Greek application.*

### **Section 9. Support for Public Health Decisions**

- *Health factors that affect the state of health of the individual and the population.*
- *Concepts of health insurance, surveillance, vigilance and alert.*

### **Section 10. Processing and analysis of images and biomarkers**

- *Introduction to digital processing of images and biomarkers.*
- *Modeling, visualization of health data.*
- *Image and signal management.*
- *Modern developments in imaging methods.*

### **Section 11. Basic Methods of Imaging the human body**

- *Historical evolution of imaging systems.*
- *Principles of illustration.*
- *The necessity of methods.*
- *Computed tomography.*
- *Magnetic resonance imaging applications*

### **Section 12. Tele-health (telemedicine, tele-care, etc.)**

- *Historical evolution.*
- *Necessary equipment.*
- *Applications for online provision of health services at Greek and International level.*
- *Distance education.*

### **Section 13. Improved medical intervention: Surgery and Robotics**

- *Improving the quality of surgeries.*
- *Robotic aid systems.*
- *Key role of information in improved medical interventions.*
- *Virtual reality applications in the diagnosis and treatment of diseases.*
- *English terminology related to the subject of the course.*

### **Section 14. Final Assessment of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

### **B. Contents of the laboratory part of the course.**

### **Section 1. Introduction to the search and retrieval of health information on the World Wide Web**

- Investigate the validity of the various web sites related to health issues.
- Main conferences of medical informatics.
- Sources of research funding in Medical Informatics.
- Search for medical IT applications in physiotherapy.
- Assessment of students.

### **Section 2. Special topics in searching and finding health information on the World Wide Web**

- Investigation of internet nodes that are specifically related to health IT.
- Search for terms in SNOMED CT etc.
- Assessment of students.

### **Section 3. Demonstration of a standard Electronic-Online Health File**

- Analysis of the mode of operation, future possibilities-benefits.
- Assessment of students.
- Section 4. Application of main functions of Microsoft Word word processor
- Basic functions of the tabs: basic, insert, page layout, view.
- Writing a scientific report, article in a scientific conference, etc.
- Evaluation of students through scientific reference work on Medical Informatics

### **Section 5. Implementation of Main Features of Microsoft Powerpoint Presenter**

- Basic functions of the tabs: basic, input, design, animations, presentation view, view.
- Creation and presentation of a medical IT topic.
- Assessment of students.

### **Section 6. Implementing the functions of the Microsoft Excel spreadsheet program - main tab**

- Simple and complex cell formats.
- Assessment of students.

### **Section 7. Detailed implementation of the functions of the Microsoft Excel spreadsheet program - tab input**

- Creating simple and complex graphs, inserting an object.
- Analysis of health data based on Excel.
- Assessment of students.

### **Section 8. Detailed application of Microsoft Excel spreadsheet functions - tab types**

- Simple and complex calculations with or without function input.
- Assessment of students.

### **Section 9. Detailed Application of Microsoft Excel Spreadsheet Functions - Data Sheets and Review**

**issues of special processing and safety of worksheets.**

- *Assessment of students.*

**Section 10. Access Database Management System. Table design**

- *Creating tables in design view, creating tables using templates, data types, primary key, creating relationships.*
- *Assessment of students.*

**Section 11. Access Database Management System. Create queries**

- *Create a new query, create a query using a wizard.*
- *Assessment of students.*

**Section 12. Access Database Management System. Mold design**

- *Design and formatting of forms.*
- *Assessment of students.*

**Section 13. Access Database Management System. Creating reports**

- *Create a blank report, create a report using templates.*
- *Application for the collection and display of health data*
- *Assessment of students.*

**Unit 14. Final Assessment of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**TEACHING and LEARNING METHODS – EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>The methods of teaching the theoretical part of the course include:</i></p> <ul style="list-style-type: none"> <li>• <i>included using panel, board, fixed overhead projector, video and TV.</i></li> <li>• <i>class discussion and feedback.</i></li> <li>• <i>work in small groups or individually.</i></li> <li>• <i>Student presentations.</i></li> <li>• <i>use of information and communication technologies (IT) (internet, multimedia, electronic chat through asynchronous education platform and e-mail).</i></li> </ul> <p><i>The laboratory part of the course is taught using the following methods and tools:</i></p> <ul style="list-style-type: none"> <li>• <i>demonstration and implementation of the means and functional programs of the course.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• work in lesson groups</li> <li>• student presentations.</li> <li>• use of information and communication technologies (IT) (internet, multimedia, electronic chat through asynchronous education platform and e-mail).</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	26 hours
	Laboratory practice	13 hours
	Study of bibliography	36 hours
	Course total (25 hours workload per credit unit)	75 hours (3 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

#### ATTACHED BIBLIOGRAPHY

##### Suggested bibliography:

1. Curtis Frye/Joan Lambert. Microsoft Office 2016 Step by Step. Εκδόσεις Β. Γκιούρδας, Αθήνα 2016.
2. Coiera E. Guide to Health Informatics. 2<sup>nd</sup> Edition.
3. Cox J, Frye C, Lambert S, Preppernau J, Murray K. Ελληνικό Office 2007 βήμα – βήμα. Εκδόσεις Κλειδάριθμος, Αθήνα 2008.
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7. Γκορτζής Ελευθέριος. Υπηρεσίες ιατρικής πληροφορικής και τηλεϊατρικής. Εκδόσεις Γκιούρδας Β, Αθήνα 2005.
8. Διαδικτυακή υποστήριξη από την εταιρεία Microsoft <http://office.microsoft.com/el-gr/default.aspx>
9. Λαζακίδου Αθηνά Α. Πληροφορικά συστήματα νοσοκομείων & Ηλεκτρονικές Υπηρεσίες Υγείας. Εκδόσεις Κλειδάριθμος, Αθήνα 2005.
10. Ιωάννης Μαντάς, Εισαγωγή στη πληροφορική, Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2007
11. Μπότσης Ταξιάρχης, Χαλκιώτης Στέλιος. Πληροφορική υγείας Η εφαρμογή της πληροφορικής στο χώρο της υγείας. Εκδόσεις Δίαυλος, Αθήνα 2005.
12. Ξαρχάκος Κ, Καρολίδης Δ. Μαθαίνετε εύκολα Microsoft Office 2007 Εκδόσεις Άβακας, Αθήνα 2008.
13. Τόκης Ι. / Τόκη Ε. Πληροφορική Υγείας. Εκδόσεις Τζιόλας, Αθήνα 2005.





### 3.2 6<sup>th</sup> SEMESTER

#### 3.2.1 CLINICAL NEUROLOGICAL PHYSIOTHERAPY

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	6 <sup>th</sup>
<b>COURSE TITLE</b>	CLINICAL NEUROLOGICAL PHYSIOTHERAPY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		2	8
CLINICAL PRACTICE		8	
<b>COURSE TYPE</b>	SPECIALTY COURSE		
<b>PREREQUISITE COURSES:</b>	NEUROLOGICAL ADULT PHYSIOTHERAPY		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/2674/">https://eclass.uop.gr/courses/2674/</a> και <a href="https://eclass.uop.gr/courses/2692/">https://eclass.uop.gr/courses/2692/</a>		

#### LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and clinical part of the course, students will be able to:</b></p> <p><i>1. interprets the pathological mechanisms of posture, movement and balance disorders, as manifested in neurological patients,</i></p>

2. *Recognizes the importance of physiotherapy evaluation;*
3. *manages the findings of subjective, objective and laboratory evaluation in the clinical environment;*
4. *re-evaluates and redefines the physiotherapy intervention accurately,*
5. *correlates clinical experience with evidence-based knowledge (linking theory to clinical practice);*
6. *sets short-term and long-term goals, prioritizes them and draws up a recovery plan with confidence;*
7. *distinguishes the special relationship between patient, therapist and family,*
8. *thoroughly evaluates the patient's medical record and interprets the findings of clinical and laboratory examinations;*
9. *draws up a recovery plan faster,*
10. *determine the type and interpret the effect of physiotherapy intervention on neurological patients in different stages of rehabilitation, in different clinical conditions (ICU, clinics, rehabilitation centers, physiotherapy, etc.),*
11. *selects the appropriate physiotherapy techniques and means by interpreting their effect,*
12. *investigates the effect of therapeutic intervention on the basis of sound clinical reasoning,*
13. *establishes relationships of trust and a sense of security with patients.*

### General Competences

- *Critical Thinking*
- *Finding and processing information*
- *Decision making*
- *Promoting free, creative and inductive thinking*
- *Production of new research ideas*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to clinical neurological physiotherapy

- *The role of physiotherapy in the rehabilitation of neurological diseases. Principles, object, objectives, rules of ethics and ethics - medical confidentiality. Interdisciplinary approach.*

#### Section 2. Structure and organization of clinics and rehabilitation units for neurological patients

- *The role of physiotherapy and its mission.*
- *Responsibilities of the physiotherapist in the ICU, in the clinics, in the rehabilitation center (institutions of chronic diseases), in the physiotherapy clinic etc. Relationships with other specialties.*
- *Organization and equipment of a physiotherapy center.*

#### Section 3. The evaluation of the neurological patient

- *The evaluation process of neurological patients. Evaluation tests (categories). Subjective - objective evaluation. Consideration of the findings.*
- *Physiotherapeutic evaluation in the ICU, in the clinics, in the rehabilitation center (institutions of chronic diseases), in the physiotherapy clinic, in the patient's home - peculiarities.*
- *Peculiarities of evaluation in special populations (newborns, infants, the elderly, mental retardation, neoplastic diseases, etc.). Physiotherapy assessment in the various stages of rehabilitation (initial stage - stage of relative recovery - chronic stage).*

#### **Section 4. Motor disability, quality of life, self-care and autonomy**

- *Factors to improve the quality of life of people with mobility disabilities.*
- *Accessibility and ergonomics in the environment of action of the physically disabled (home, work).*
- *Aids (categories, types, utility), orthotics, adaptation of the environment to the special needs of the patient.*
- *Disorders of urination, defecation and their treatment. Sex life and disability.*

#### **Section 5. Physiotherapy of neurological patients in different clinical conditions**

- *Peculiarities of physiotherapy intervention in the intensive care unit (ICU), in clinics, in the rehabilitation center (institutions of chronic diseases), in the physiotherapy clinic, in the patient's home.*
- *Principles - peculiarities of physiotherapy intervention in the various stages of rehabilitation.*

#### **Section 6. Basic principles of physiotherapy intervention in different age groups and special populations particularities**

- *The child neurological patient and its peculiarities. Basic principles of physiotherapy approach during neonatal, infant, toddler, (pre) school age and adolescence.*
- *Third Age. Basic principles of physiotherapy approach. Disorders of superior cortical functions.*
- *Psychiatric diseases. Psychomotor disorders. The psychological factor in rehabilitation - psychosynthesis.*
- *Family relations - physiotherapist.*

#### **Section 7. Patients with multiple disabilities**

- *Treatment of patients with multiple disabilities - goal setting - hierarchy (presentation of individual cases).*

#### **Section 8. Design of rehabilitation programs for neurological patients**

- *Defining therapeutic goals (short-term - long-term), in the various stages of rehabilitation (treatment scenarios).*
- *Objectivity, adaptability of rehabilitation programs.*

#### **Section 9. Means and techniques of physiotherapy intervention**

- *The effect of different means and techniques on muscle weakness, muscle tone, coordination of movements, body aesthetics, balance and gait (presentation of individual cases).*
- *Selection criteria - feasibility.*

#### **Section 10. The contribution of technology to the rehabilitation of neurological patients**

- *Modern means of therapeutic intervention for the treatment of disorders of muscle tone, susceptibility, fit, balance and gait (treadmill, balance platform, FES, computer - robotic systems, virtual reality systems, etc.).*

#### **Section 11. Treatment of muscle tone disorders**

- *Distinguish and treat disorders of muscle tone in different categories of patients - lesions in the individual stages of recovery.*
- *Selection of therapeutic means - techniques for the treatment of muscle tone disorders (classical therapeutic methods - modern means) (presentation of individual cases).*

#### **Section 12. Dealing with coordination, balance, and gait disorders**

- *Distinguish and treat disorders of coordination, balance and gait in different categories of patients - injuries in the individual stages of rehabilitation (presentation of individual cases).*

- *Selection of therapeutic means - techniques for the treatment of disorders of coordination, balance and gait (classical therapeutic methods - modern means).*

### **Section 13. Clinical reasoning and problem solving in the rehabilitation of neurological diseases. Linking theory with practice and practice with theory**

- The process of clinical reasoning and decision making in the rehabilitation of neurological diseases. Decision making models, reasoning and problem solving strategy.
- English terminology related to the subject of the course.

### **Section 14. Final evaluation of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

## **B.Contents of the clinical practice of the course.**

### **Section 1. Physiotherapeutic evaluation in the various stages of rehabilitation**

- *Physiotherapeutic evaluation of patients in the ICU, in the clinics, in the rehabilitation center in the physiotherapy clinic etc. Evaluation at each stage of rehabilitation. Performance recording.*
- *Keeping the medical record - recording the course of treatment.*

### **Section 2. Differential evaluation of neurological patients according to the type of disorder**

- *Physiotherapeutic evaluation of patients with upper and peripheral motor neuron damage, extrapyramidal lesion, cerebellar lesion, etc. Discrimination - differential assessment.*
- *Evaluation in special population groups (infants, children, the elderly, etc.).*

### **Section 3. Management - treatment of muscle tone disorders**

- *Treatment of disorders of muscle tone in lesions of the Upper and Lower Motor Neuron, in Extrapyramidal disorders, etc.*
- *Practical application of therapeutic techniques and means in different clinical conditions, age groups and stages of treatment.*

### **Section 4. Management - treatment of neuromuscular coordination and balance disorders**

- *Treatment of disorders of neuromuscular coordination and balance in different lesions.*
- *Practical application of therapeutic techniques and means in different clinical conditions, age groups and stages of treatment.*

### **Section 5. Retraining of gait of neurological patients**

- *Retraining of walking in different diseases - damage to the nervous system (CNS, P.N.S. etc.).*
- *Practical application of therapeutic techniques and means of gait retraining in different clinical conditions, age groups and stages of treatment. Use of special aids (orthotics, guardians, bacteria, etc.).*

### **Section 6. Management - treatment of muscle weakness**

- *Treatment of muscle weakness in various diseases - damage to the nervous system (including neuromuscular diseases).*
- *Practical application of therapeutic techniques and means of increasing muscle strength in different clinical conditions, age groups and stages of treatment.*

### **Section 7. Management - treatment of sensory - perceptual deficits**

- *Treatment of sensory - perceptual deficits in neurological patients (aesthetic perceptual deficits of vision, hearing, kinesthesia, tactile recognition, spatial orientation, etc.).*
- *Practical application of therapeutic techniques and means in different clinical conditions, age groups and stages of treatment.*

### **Section 8. Mobilization - movement of a neurological patient**

- *Practical application of mobilization techniques in different clinical conditions, age groups according to the rehabilitation stage.*
- *The movement of the neurological patient. Techniques and means of facilitating displacement - moving to different positions. Peculiarities - limitations.*

### **Section 9. Applied use of laboratory - hospital equipment**

- *Training in the use and practical application of laboratory, clinical, and physiotherapy equipment to patients.*

### **Section 10. Use of orthotics, prostheses and aids**

- *Training in the use of orthotics, prostheses and aids (self-care, movement) in neurological patients.*

### **Section 11. Application of special therapies in neurological patients**

- *Electrical stimulation techniques - TENS, muscle electrical stimulation, FES.*
- *Biofeedback.*
- *Hydrokinetic therapy.*
- *Escalator, suspension systems, balance platforms, etc.*

### **Section 12. Application of special therapeutic techniques in neurological patients**

- *Techniques to facilitate muscle activity and improve movement control: Palms, stretches, compression, vibration, ice, vestibular stimulation, facilitation of movements.*
- *Techniques for normalizing muscle tone and maintaining the elasticity of soft tissues: Stretching, bandaging, charging, positioning, pressure, vibration, ice, heat, massage, etc.*
- *Specialized techniques - exercises: Frenkel, Cawthorne-Cooksey etc.*
- *Restrictive-induced (forced) treatment (CIMT).*
- *Nerve tissue mobilization - Neurodynamics.*

### **Section 13. Treatment planning - defining the therapeutic framework**

- *Defining the therapeutic strategy for problem solving.*
- *Approach based on treatment systems (intervention philosophies - physiotherapy methods). Approach adapted to functional goals, holistic approach, combination-selective approach etc.*
- *Designing group therapeutic exercise programs.*
- *Clinical reasoning - research evidence - justification.*

### **Unit 14. Final Assessment of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*
- *During the clinical exercise the student is asked to deal with situations, which are accompanied by: Disturbed muscle tone, coordination of movements, muscle weakness, inability to control balance, abnormal gait or a combination of the above.*
- *These conditions - diseases include:*

- *Static encephalopathies or degenerative diseases affecting the Central Nervous System (cerebral palsy, multiple sclerosis, Parkinson's disease, brain tumors, etc.).*
- *Diseases - lesions that affect the control (regulation) systems of muscle tone and muscle synergy (dyskinetic syndromes, ataxia, chorea, etc.).*
- *Diseases - disorders affecting the Peripheral Nervous System (paralysis of the plexus arm, neuropathies - polyneuropathy, Guillain-Barré, etc.).*
- *Disorders of the vertebral and neural tube (bifurcated spine, hydrocephalus, etc.).*
- *Spinal cord injuries (quadriplegia, paraplegia, Brown-Sequard, etc.).*
- *Chromosomal abnormalities (Down syndrome, Prader-Willi etc.).*
- *Neuromuscular diseases, myopathies - muscle dystrophies (Dushenne, Becker, spinal muscular atrophy, etc.).*
- *Neuromuscular disorders - myasthenia gravis.*
- *Neurometabolic diseases (eg leukodystrophies).*
- *Psychomotor disorders and psychiatric illnesses.*
- *Somatosensory - perceptual disorders (aesthetic perceptual deficits of vision, hearing, kinesthesia, tactile recognition, spatial orientation, etc.).*
- *Reduction of superior cortical - cognitive functions.*
- *To deal with the above the student has at his disposal a large number of physiotherapy techniques and means.*
- *Physiotherapy techniques, the application of which the student has consolidated during the clinical practice, include (indicatively):*
  - *Tactile - receptive stimulation techniques.*
  - *Techniques to facilitate muscle activity and improve movement control: Palms, stretches, compression, vibration, ice, vestibular stimulation, facilitation of movements.*
  - *Techniques for normalizing muscle tone and maintaining the elasticity of soft tissues: Stretching, bandaging, loading, positioning, traction, compression, vibration, etc.*
  - *Special physiotherapy techniques based on approaches - treatment systems (PNF, Petto, NDT, Brunnstrom, Vojta, SI etc.).*
  - *Special techniques - exercises: Frenkel, Cawthorne-Cooksey etc.*
  - *Protocols based on restrictive-induced (forced) treatment (CIMT-FUT).*
  - *Nerve tissue mobilization - Neurodynamics.*
- *Physiotherapy devices, the application of which the student has consolidated during the clinical practice, include (indicatively):*
  - *Natural means: hot - cold compresses (heat therapy - cryotherapy), hydrotherapy etc.*
  - *Electrical stimulation means (TENS, FES etc.).*
  - *Biofeedback.*
  - *Escalator, suspension systems.*
  - *Special aids to facilitate movement and gait training.*
  - *Balance platforms.*
  - *Orthotics - intentions.*
  - *Special means and evaluation tests.*

## TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	<b>THEORITICAL PART: FACE TO FACE</b> <b>CLINICAL PRACTICE: AT THE HOSPITAL</b>
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>Theoretical part:</i></p> <p><i>Many teaching techniques and tools are included, including:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using blackboard, transparencies, fixed overhead projector, video and television</i></li> <li>• <i>Discussion in the classroom and feedback</i></li> <li>• <i>Work in small groups or individually</i></li> <li>• <i>Student presentations</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</i></li> <li>• <i>Visiting speakers</i></li> </ul> <p><i>Clinical part:</i></p>

	<p>The clinical part of the course is conducted in the hospital with the training and guidance of specialized and experienced clinical physiotherapists and with the use of nursing, laboratory and clinical equipment:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques applied in the rehabilitation of the patient in the hospital</li> <li>• Demonstration and application of the laboratory equipment of the physiotherapy hospital of the hospital</li> <li>• Clinical practice of students in small groups</li> <li>• Presentations of clinical cases by students</li> <li>• Analysis - presentation of clinical cases</li> <li>• Clinical application</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>26 hours</i>
	<i>Clinical Practice</i>	<i>104 hours</i>
	<i>Study of bibliography</i>	<i>70 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>200 hours (8 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the clinical part of the course:</li> </ul> <p>oral examinations, assignment, presentation and application of the physiotherapy intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of the evaluation sheets of the patients by the students. In each course, the students's participation and their ability to respond adequately to the treatment of the clinical case that is being addressed are evaluated by the teachers. Successful or not, intervention used under the guidance of the teacher is evaluated. Specifically, the examination is based on the patient's ability to approach, the taking of history, the order of evaluation, his ability to set short-term and long-term therapeutic goals and the application of appropriate physiotherapy techniques. The student must have successfully completed the set of specific physiotherapy interventions that cover all physiotherapy techniques in each clinic that is employed. The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and are equally calculated by the grade he collects in each clinical placement he performs. The severity of the</p>	



	<i>final examinations in the clinical part corresponds to 30% of the final score (severity coefficient 0.3).</i>
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## ATTACHED BIBLIOGRAPHY

### *Suggested bibliography:*

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## 3.2.2 CLINICAL PHYSIOTHERAPY OF MUSCULOSKELETAL SYSTEM II

<b>SCHOOL</b>	SCHOOL OF HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	6 <sup>th</sup>
<b>COURSE TITLE</b>	CLINICAL PHYSIOTHERAPY OF MUSCULOSKELETAL SYSTEM II		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
LECTURES		2	7
CLINICAL PRACTICE		6	
<b>COURSE TYPE</b>	SPECIALTY		
<b>PREREQUISITE COURSES:</b>	PHYSIOTHERAPY OF MUSCULOSKELETAL SYSTEM II		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><b>After completion of the theoretical and clinical part of the course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. identifies the type of tissue involved in the injury (muscle, tendon, ligament, etc.), the type of injury &amp; the severity of the injury,</li> <li>2. evaluate and record motor, stasis, motor-sensory, neurodynamic and functional disorders in patients with various musculoskeletal injuries,</li> </ol>

3. designs a physiotherapy evaluation program, choosing the appropriate means, methods & techniques of physiotherapy with confidence,
4. implements and develops a recovery program which will be based on holistic-scientific documentation and at the same time will respond to the individual needs & particularities of each patient,
5. sets realistic short-term and long-term therapeutic goals depending on the stage (acute, subacute, chronic, functional),
6. implements decisions based on sound clinical reasoning throughout the course of treatment intervention faster,
7. collects a complete history of patient evaluation by recording the findings and utilizing all the information provided (subjective, objective, laboratory) regarding the type of injury, the tissue involved and the severity of the injury accurately;
8. identifies in depth and manages the information resulting from the clinical & laboratory findings of the patient evaluation in an ideal way,
9. organizes the physiotherapy rehabilitation program,
10. identifies the appropriate treatment tools & techniques that serve the purpose & goals of the treatment plan he has organized for the specific patient.

### General Competences

- Critical Thinking
- Finding and processing information
- Decision making
- Promoting free, creative and inductive thinking
- Production of new research ideas

## SYLLABUS

### A. Contents of the theoretical part of the course:

#### Section 1

- Introduction to the process of rehabilitation of M / S injuries - F / Practice guide: The model of disability. Summary of the Physiotherapy Practice Guide (part 1 & 2).
- The clinical reasoning in the recovery of M / S injuries: The model of disability, the model of patient-client management. Recording system. Interaction & connection of theory with practice. The process of clinical reasoning and decision making in the rehabilitation of musculoskeletal disorders. Decision making models, reasoning and problem solving strategy.

#### Section 2

- Deepening & consolidating the knowledge of Evaluation of the musculoskeletal system under clinical conditions: YASO - Subjective evaluation (Y), objective (clinical) evaluation (A), means & techniques of evaluation: Active movements & their modifications, passive normal movements (end-feel ) passive movements, capsular pattern, muscle strength, range of motion-flexibility-muscle tension-shortening, auxiliary movements (Special Mobilization Techniques-ETC), special tests & integrity tests, balance tests, balance test, specificity standards}. Consideration of the data (S), organization of the treatment plan (O), implementation, supervision and adaptation to all phases of rehabilitation (acute-subacute-chronic phase).
- The role & management of pain in F / th rehabilitation of musculoskeletal injuries: Definition, types & evaluation of pain (acute-chronic-neuropathic etc). The role, management & control mechanisms of pain during the process of rehabilitation of various M / S injuries-disorders.

#### Section 3

- Shoulder injuries and disorders: Consolidation of knowledge through analysis of complex clinical cases of shoulder injuries-disorders. Clinical classification of injuries-shoulder disorders & evaluative-therapeutic algorithms of clinical reasoning.

- *Complex clinical cases of injuries-disorders of the shoulder joint: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that students dealt with in the clinical part-work course.*
- *Mobility disorders in M / S injuries: Evaluation & restoration of range of motion & flexibility in M / S injuries.*
- *Disorders of resistance to M / S injuries: Evaluation & restoration of aerobic capacity & resistance to M / S injuries.*

#### **Section 4**

- *Elbow injuries & disorders: Consolidation of knowledge through analysis of complex clinical cases of elbow injuries-disorders. Clinical classification of elbow injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of elbow injuries-disorders: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that the students dealt with in the clinical-laboratory part.*
- *Neuromuscular disorders in M / S injuries: Reactive Neuromuscular Exercise. Evaluation & restoration of susceptibility and kinetic control in M / S injuries*
- *Disorders of muscle performance in M / S injuries: Evaluation & restoration of muscle performance (strength, endurance) in M / S injuries.*

#### **Section 5**

- *Injuries & disorders of the hand & wrist: Consolidation of knowledge through analysis of complex clinical cases of injuries-disorders of the hand & wrist. Clinical classification of injuries-disorders of the hand-wrist & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of injuries-disorders of the hand & wrist: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that the students worked on in the clinical part- course.*
- *Disorders of balance & stability of the upright posture in M / S injuries: The role of balance in the process of F / th rehabilitation of M / S injuries. M / S injury & balance, evaluation & F / i restoration of balance in M / S injuries. Clinical & laboratory evaluation (scales & tests of clinical balance evaluation, balance platforms, etc.) and restoration of balance in M / S injuries.*

#### **Section 6**

- *Injuries & disorders of the AMSS and the cranio-maxillary area & temporomandibular joint: Consolidation of knowledge through analysis of complex clinical cases of injuries-disorders of the AMSS and the craniofacial area & temporomandibular joint. Clinical classification of AMSS injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of injuries-disorders of AMSS: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of problem solving approach on relevant clinical cases (true clinical case studies) that students dealt with in the clinical-laboratory part.*
- *Fall risk assessment tools for 3 & 4 year olds and certified fall prevention therapy exercise programs: Static, dynamic balance assessment tools, multifactorial assessment tools and functional mobility assessment (Sharpened Romberg test, Functional Reach test, I 180) , ABC, TUG test & Berg Balance Scale etc). Certified fall prevention therapeutic exercise programs (ProFouND, Otago, FaMe, PS etc).*

#### **Section 7**

- *Injuries, disorders of the THMS & the chest: Consolidation of knowledge through analysis of complex clinical cases of injuries-disorders of the THMS and the chest & their clinical classification.*
- *Injuries & disorders of OMSS: Consolidation of knowledge through analysis of complex clinical cases of injuries-disorders of OMSS. Clinical classification of OMSS injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of injuries-disorders of OMSS: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that students dealt with in the clinical part of the laboratory.*

#### **Section 8**

- *Pelvic Zone Injuries & Disorders: Consolidation of knowledge through analysis of complex clinical cases of pelvic injuries-disorders. Clinical classification of pelvic injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of pelvic floor injuries-disorders: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that the students worked on in the clinical part.*
- *The isokinisation in the F / T of the M / S injuries: The role of the isokinis in the F / T restoration of the M / S injuries. Clinical feasibility of isokinization in M / S upper & lower limb injuries.*

### Section 9

- *Injuries & disorders of the hip, injuries of the thigh muscles: Consolidation of knowledge through analysis of complex clinical cases of injuries-disorders of the hip & injuries of the thigh muscles. Clinical classification of pelvic injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of hip injuries and thigh muscle injuries: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of problem solving approach on relevant clinical cases (true clinical case studies) that students clinical-laboratory part of the course.*
- *The open & closed chain exercises (AKA & KKA) in the F / th of M / S injuries: Advantages & disadvantages of their use in the F / th process of recovery of M / S injuries. The role of closed chain exercises in regaining neuromuscular control.*
- *The pleiometric exercises in the F / th of M / S injuries: The role of the plyometric exercises in the F / th restoration of M / S injuries. Integration of pleiometric exercises in the F / th program of rehabilitation of M / S injuries - clinical feasibility.*

### Section 10

- *Knee injuries & disorders: Consolidation of knowledge through analysis of complex clinical cases of knee injuries-disorders. Clinical classification of knee injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning (European Rehabilitation Panel, International Patellofemoral Research Retreat etc).*
- *Complex clinical cases of knee injuries-disorders: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that students dealt with in the clinical-laboratory part.*
- *Electromyography (EMG) & electromyographic bio-feedback (EMG biofeedback) in the F / th of M / S injuries: The role of electromyography and electromyographic bio-feedback in the F / T restoration of M / S injuries. Clinical feasibility of electromyography and electromyographic bio-feedback in M / S upper / lower limb injuries & S.S.*
- *F / T in disorders of the extensor mechanism of the knee & the patellofemoral joint: Consolidation of knowledge through analysis of complex clinical cases of patellofemoral pain. The use of isokinesis, electromyography and electromyographic biofeedback as tools for evaluation & F / T rehabilitation of complex clinical cases of patellofemoral pain.*

### Section 11

- *Ankle injuries injuries of the muscles & tendons of the gastrocnemius: Consolidation of knowledge through analysis of complex clinical cases of injuries-disorders of the muscles & tendons of the gastrocnemius. Clinical classification of pelvic injuries-disorders & evaluative-therapeutic algorithms of clinical reasoning.*
- *Complex clinical cases of injuries-disorders of the muscles & tendons of the gastrocnemius: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of the problem solving approach on relevant clinical cases (true clinical case studies) that students part of the course.*
- *The open & closed chain exercises (AKA & KKA) in the F / th of M / S injuries: Advantages & disadvantages of their use in the F / th process of recovery of M / S injuries. The role of closed chain exercises in regaining neuromuscular control.*
- *The techniques of muscle energy in the F / th of M / S injuries: The functional relationship of the myoperitoneal, neuromuscular & articular elements of the kinetic chain. Muscular & motor dysfunction and muscle energy techniques (TMS). Clinical, neuromuscular & neuro-physiological basis of the use of TME. Their use in injuries of the M / S system.*

### Section 12

- *Muscular imbalance - The role of muscles in painful musculoskeletal syndromes: Structural and functional approach to muscular imbalance, the sensorimotor system - neuromuscular aspects of static and articular stabilization, skeletal, musculoskeletal and tonic. of musculoskeletal pain and muscle imbalance. Functional assessment of muscle imbalance and motor patterns. Treatment of muscular imbalance syndromes (direct & indirect techniques of restoration of peripheral elements, techniques of restoration of muscle balance, the role of sensorimotor rehabilitation in muscular imbalance syndromes). Clinical muscular imbalance syndromes A.MSS, upper extremity, OMSS, lower extremity. Consolidation of knowledge through analysis of complex clinical cases.*

- *Complex clinical cases of muscle imbalance: Presentation, analysis & clinical reasoning, feedback, according to the philosophy of problem solving approach on relevant clinical cases (true clinical case studies) that students dealt with in the clinical-laboratory part of the course.*
- *The techniques of muscle energy in the F / th of M / S injuries: The functional relationship of the myoperitoneal, neuromuscular & articular elements of the kinetic chain. Muscular & motor dysfunction and muscle energy techniques (TMS). Clinical, neuromuscular & neuro-physiological basis of the use of TME. Their use in injuries-disorders of the M / S system.*

### **Section 13**

- *Injuries-Diseases of the peripheral nervous system: Etiopathogenesis of diseases-injuries of the peripheral nervous system. Classification of injuries according to Seddon and Sunderland, clinical picture, course of recovery, F / T treatment & F / T rehabilitation phases depending on the treatment of choice and the stage of healing. Consolidation of knowledge through analysis of complex clinical cases.*
- *The evaluation & restoration of the functional capacity in the F / th of the M / S injuries: Definition of the functional evaluation & restoration according to the level of the patient and the anatomical area (upper extremity, lower extremity, SS).*
- *The design of a home exercise program for patients with M / S injuries: The role of the F / th as an educator and the role of the patient's active participation in the treatment process. The philosophy of exercise programs for the home, program design instructions.*
- *English terminology related to the subject of the course.*

### **Section 14**

- *Final evaluation of students:*
- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the Clinical Part of the course:**

### **Section 1: Contact with the working environment of hospitals, nursing homes, KAPI, Rehabilitation Centers, etc.**

- *First contact & and consolidation of communication-cooperation rules with the rehabilitation team & health professionals and patients. Distribution of medical cases & division of roles in the team. of the students.*
- *Clinical cases of musculoskeletal patients.*
- *Examples and applications from students.*
- *Student evaluation & feedback within the group*

### **Section 2. Physiotherapy for shoulder injuries and disorders**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 3. Physiotherapy for injuries & elbow disorders**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 4. Injuries & disorders of the hand & wrist**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough*

*planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 5: Injuries & disorders of the AMSS and the cranio-maxillary & temporomandibular joint**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 6: Injuries, disorders of the THMS & thorax**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 7: Injuries & disorders of the OMS**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 8: Injuries & disorders of the OMS**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 9: Injuries & disorders of the hip, injuries of the thigh muscles**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### **Section 10: Injuries & disorders of the knee**

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### Section 11: Injuries & disorders of the knee

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### Section 12: Ankle Injuries Muscular & Tendon Injuries

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### Section 13: Posture Disorders & Muscle Imbalances, Peripheral Nerve Injuries & Trapping Syndromes

- *Clinical cases - practice of clinical evaluation-treatment skills, analysis & clinical reasoning according to the philosophy of the problem solving approach taught in the course.*
- *At the end of the clinical course follows a brief discussion between the teacher & students that focuses on assessment, self-assessment, feedback of student & team performance by the teacher and their students. Then follows a rough planning of the purpose and objectives of the next teaching course & clinical treatment session based on the continuous personalized adaptation & evolution of the patients' treatment plan.*

### Unit 14. Final evaluation of students

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b>	<p><b>THEORITICAL PART: FACE TO FACE</b></p> <p><b>CLINICAL PRACTICE: AT THE HOSPITAL</b></p>
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p><i>The methods of teaching the theoretical part of the course include:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures - presentations using a blackboard, transparencies, fixed projection system (overhead projector), video (DVD) and television.</i></li> <li>• <i>Class discussion and feedback.</i></li> <li>• <i>Individual or group work of students and presentations (optional).</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</i></li> </ul>



	<ul style="list-style-type: none"> <li>• <i>Invitation of speakers (after approval of the Department).</i></li> </ul> <p><i>Clinical part:</i></p> <p><i>The clinical part of the course is conducted in the hospital with the training and guidance of specialized and experienced clinical physiotherapists and with the use of nursing, laboratory and clinical equipment:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of methods and techniques applied in the rehabilitation of the patient in the hospital</i></li> <li>• <i>Demonstration and application of the laboratory equipment of the physiotherapy hospital of the hospital</i></li> <li>• <i>Clinical practice of students in small groups</i></li> <li>• <i>Presentations of clinical cases by students</i></li> <li>• <i>Analysis - presentation of clinical cases</i></li> <li>• <i>Clinical application</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	<i>Lectures</i>	<i>26 hours</i>
	<i>Clinical Practice</i>	<i>78 hours</i>
	<i>Study of bibliography</i>	<i>71 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>175 hours (7 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 50% of the final score (weight factor 0.5).</i></p> <ul style="list-style-type: none"> <li>• <i>for the clinical part of the course:</i></li> </ul> <p><i>oral examinations, assignment, presentation and application of the physiotherapy intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of the evaluation sheets of the patients by the students. In each course, the students's participation and their ability to respond adequately to the treatment of the clinical case that is being addressed are evaluated by the teachers. Successful or not, intervention used under the guidance of the teacher is evaluated. Specifically, the examination is based on the patient's ability to approach, the taking of history, the order of evaluation, his ability to set short-term and long-term therapeutic goals and the application of appropriate physiotherapy techniques. The student must have successfully completed the set of specific physiotherapy interventions that cover all physiotherapy</i></p>	

techniques in each clinic that is employed. The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and are equally calculated by the grade he collects in each clinical placement he performs. The severity of the final examinations in the clinical part corresponds to 50% of the final score (weighting coefficient 0.5).

## ATTACHED BIBLIOGRAPHY

### Suggested bibliography:

#### Greek bibliography

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3. Γαλανόπουλος, Ν.Γ., Βερέττας, Δ. Α. Ι., *Επώδυνες καταστάσεις μαλακών ιστών μυοσκελετικού συστήματος*, Επιστημονικές εκδόσεις Μ. Γ. Παρισιάνου, 2000.
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### 3.2.3 PAEDIATRIC NEUROLOGICAL PHYSIOTHERAPY

SCHOOL	SCHOOL OF HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	PHYS_30	SEMESTER	6 <sup>th</sup>
COURSE TITLE	PAEDIATRIC NEUROLOGICAL PHYSIOTHERAPY		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS	
LECTURES	3	5	
CLINICAL PRACTICE	2		
COURSE TYPE	SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT		
PREREQUISITE COURSES:	PRINCIPLES OF NEUROREHABILITATION		
DEPENDENT COURSES:	CLINICAL NEUROLOGICAL PHYSIOTHERAPY		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/2673/">https://eclass.uop.gr/courses/2673/</a> <a href="https://eclass.uop.gr/courses/2693/">https://eclass.uop.gr/courses/2693/</a>		

#### LEARNING OUTCOMES

<p><b>Learning outcomes</b></p> <p><i>The student will be able after the end of the course to:</i></p> <ol style="list-style-type: none"> <li><i>interpret the normal mechanisms of control of posture and movement,</i></li> <li><i>describe in detail the various diseases, disorders, deficits and general dysfunctions of the nervous system, as manifested in pediatric patients,</i></li> <li><i>identify and interprets the type of neurological disorder and its symptoms accurately,</i></li> <li><i>prioritize the main and secondary problems it is called to face,</i></li> <li><i>develop the basic principles and impact of physiotherapy approaches, tools and techniques;</i></li> <li><i>evaluate the aesthetic, stasis, motor and cognitive-perceptual disorders as they manifest in children,</i></li> <li><i>distinguish the normal and abnormal development of the child's movement, posture, reflexes and reactions accurately,</i></li> </ol>
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8. *apply in practice special techniques and means of treatment with confidence,*
9. *select decisions (decision making), on the basis of correct clinical reasoning, to compile a plan of physiotherapy intervention and to plan rehabilitation programs, choosing the appropriate methods - techniques for problem-solving. accuracy.*

### General Competences

- *Critical thinking.*
- *Finding and processing information.*
- *Decision making.*
- *Promoting free, creative and inductive thinking.*
- *Production of new research ideas.*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to paediatric neurological physiotherapy

- *Chronology. The development of pediatric neurological physiotherapy today.*
- *Knowledge object, principles and ethical parameters.*
- *The role of the pediatric physiotherapist - responsibilities.*

#### Section 2. Physiotherapy evaluation

- *Theoretical basis - basic principles of physiotherapy evaluation in different age groups (newborns, infants, toddlers, etc.).*
- *Evaluation of the general condition of the newborns. Evaluation systems1. Neurological (neuro-kinetic) and developmental assessment. Assessment of the functional state (integrity) of the nervous system.*
- *Evaluation of primordial reflexes, muscle tone, posture and movement in premature and full-term infants. Pattern recognition and evaluation of generalized movements.*
- *Neurodevelopmental assessment in high-risk groups Early clinical signs of suspected neurological disorders and identification of "suspicious" infants. Follow-up.*
- *Neuromotor behavior evaluation tests. Classification and properties of tests (prognostic, detective tests, etc.).*  
*[Evaluation is divided into two parallel areas, a) in the evaluation of general behavior (ocular mobility, level of alertness, respiratory pattern, etc.) (behavioral assessment) and b) in neurological assessment. Many rating scales include elements of both categories. In our text these scales are characterized as neurobehavioral scales].*

#### Section 3. Neonatal Intensive Care Unit - The role of physiotherapist

- *The role of the physiotherapist in the neonatal intensive care unit (ICU).*
- *Physiotherapeutic evaluation in the neonatal intensive care unit (MENN). The effect - impact of the environment of M.E.N.N. in infants.*
- *M.E.N.N. and physiotherapy approach. Development intervention. Relationship with other specialties.*

#### Section 4. Primary reflexes

- *Primitive reflex activity - reflexes. Evaluation - Interpretation of reflex activity - primary reactions to different types of cerebral palsy.*
- *The role of reflexes in development.*

#### Section 5. The development of posture control

- *The development and control of attitude. The development and consolidation of head control, independent seat, posture and gait.*
- *Theories for the development of posture control (reflex-hierarchical theory, systems theory, etc.).*
- *The role of posture reflexes, orientation reactions and balancing reactions in the development of posture control.*
- *Local, partial and general stagnant reactions. Balancing and protective reactions: Deviation reactions and static stabilization reactions.*

## Section 6. The development of muscle tone mobility and functional skills

- The concept of motor development. Theoretical basis of mobility. Motor control, motor learning and development.
- The design of the movement. The role of the senses in the development of mobility. Rough and fine motor function. Voluntary - intentional and involuntary mobility.
- Stages of intrauterine development. Aesthetic-motor development during the 1st year of life - developmental stages (prone position, supine position, etc.). Normal developmental sequence. The development of functional skills.
- Abnormal growth. The developmentally resting infant.
- Detection tests & tests to assess static-motor behavior, functional level - skills, etc. (ICF, GMFCS, GMFM, GMPM, TIMP, PEDI, CLA, VOJTA, Prechtl, Hammersmith, MAI, BSID, AIMS, PDMS, TUG ARA, GUEST etc.).
- The development of muscle tone. Prematurity and muscle tone.
- Evaluation of muscle tone disorders - interpretation.

## Section 7. Cerebral palsy

- *Definition, epidemiology, etiology, classification, clinical picture in the different types of OP, concomitant disorders, etc.*
- *Early detection of infants with suspected OP (early clinical signs - symptoms). The importance of early evaluation and intervention.*
- *The development and evaluation of posture, mobility, reflexes, balancing reactions, muscle tone and gait in the OP.*
- *Restrictions on posture and mobility control. Impotence of the motor system. Sensory impotence. Cognitive and perceptual problems.*
- *Gait disorders and their treatment in different forms of OP.*
- *Treatment of motor disorders in children with OP. Coping strategies and treatment planning. The role of physiotherapy.*
- *Musculoskeletal complications in different types of OP Movement - use of special aids and orthotics in the OP. (uprights, walkers, splints, etc.).*

## Section 8. Peripheral motor neuron lesions

- *Injury of the mesh arm. Definition, epidemiology, etiology (mechanism of damage), classification (types), clinical picture, etc.*
- *Physiotherapeutic evaluation (analysis of motor function, patterns of motor dysfunction), treatment and physiotherapy approach of children with injuries - diseases of the peripheral motor neuron.*
- *Section 9. Spinal & Nerve Tube Problems: Bifurcated Back - Hydrocephalus*
- *Definition, epidemiology, etiology, pathogenesis, prenatal methods of localization, clinical picture (accompanying problems).*
- *Evaluation - physiotherapy approach to patients with spina bifida and hydrocephalus.*
- *Use of orthotics and aids.*
- *Section 10. Neuromuscular Diseases: Myopathies - Muscular Dystrophies*
- *Definition, epidemiology, etiology, pathogenesis, classification (types of myopathies), clinical picture.*
- *Duchenne & Becker muscular dystrophy, congenital myopathy etc.*
- *Spinal muscular atrophy (SMA).*
- *Evaluation and physiotherapy approach to the different types of myopathies - muscle dystrophies. Peculiarities of physiotherapy intervention.*
- *Section 11. Developmental disorders & coordination disorders*
- *Diffuse developmental disorders. Definition, epidemiology, etiology, classification, clinical picture (features), types and treatment.*
- *Attention Deficit Disorder - Hyperactivity Disorder (ADHD).*
- *Developmental delay. The clumsy child.*
- *Physiotherapy approach - interdisciplinary team.*

## Section 12. Special topics in pediatric neurology

- *Special issues of neurology refer to rare diseases or syndromes which by themselves can not be a separate unit due to their rarity and / or tendency to eliminate them (eg neurometabolic diseases, Rett syndrome, Worster-Drought, Dandy-Walker etc.).*
- *Included are diseases of neurological interest and / or systemic diseases that lead to concomitant neurological deficits such as joint problems, muscle weakness, psychomotor disorders, etc.*
- *Chromosomal abnormalities: Evaluation and physiotherapy approach of patients with Down syndrome, Prader-Willi et al.*
- *The child with multiple injuries.*

## Section 13. Introduction to physiotherapy approaches

- *Principles of physiotherapy. Theoretical background of physiotherapy intervention systems. Interpretation of approaches based on the principles of motor control and motor learning.*

- *General description of approaches - historical background (Fay, guidance (inductive) training - Peto, reflex mobilization - Vojta, Rood, sensory integration (SI), neurodevelopmental therapy (NDT), Phelps, Collis, Doman & Delacato, Kabat (PN) , CIMT-FUT etc.).*
- *Similarities - differences between approaches. Combination-selective approach.*
- *The child with a motor disability and his family*
- *The contribution of the family to the early physiotherapy intervention.*
- *The role of physiotherapy in the family-centered approach. The team approach.*
- *English terminology related to the subject of the course.*

#### **Section 14. Final assessment of students**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

### **B. Contents of the clinical practice of the course.**

#### **Section 1. Evaluation of primordial reflexes and stagnant reactions**

- *Evaluation and interpretation of primitive reflex activity.*
- *Evaluation and interpretation of local, partial and general stagnant reactions. Evaluation and interpretation of orientation reactions. Evaluation of balancing, protective reactions, deviation and stabilization reactions.*
- *Evaluation tests - practical application.*

#### **Section 2. Evaluation of mobility and functional abilities**

- *Evaluation of coarse and fine motor function. Generalized movements. Stages of kinetic development - developmental sequence. Identify patterns. Evaluation of the operational level.*
- *Evaluation tests - practical application.*

#### **Section 3. Analysis - gait training**

- *Kinematic and kinetic characteristics of normal gait. Description of the activity (walking cycle). Factors affecting performance.*
- *Gait analysis in different types of cerebral palsy.*
- *Support equipment. Robotic systems. Demonstration - practical application.*

#### **Section 4. Neurodevelopmental model of physiotherapy intervention**

- *Theoretical basis and evolution of the neurodevelopmental model of physiotherapy intervention (Neuro-Developmental approach). Neurodevelopmental therapy (NDT). Connection with other physiotherapy intervention systems.*
- *Facilitation techniques (facilitation of stasis reactions, balance and movements). Techniques of tactile and receptive irritation - palmistry, charging, placement, etc. Adaptations to operational situations (activities of daily living). Practical application.*

#### **Section 5. Reflex model of physiotherapy intervention**

- *Theoretical background - basic principles of the reflex model of physiotherapy intervention. The Vojta approach. Connection with other physiotherapy intervention systems.*
- *Kinetic coordination complexes (reflex rolling and creep). Practical application.*
- *Correlation of reflex mobilization with spontaneous mobility.*

#### **Section 6. Aesthetics - Sensory integration and processing**

- *Theoretical background - basic principles of sensory integration - sensory integration. Connection with other physiotherapy intervention systems. Multisensory environment - equipment.*
- *Methods - techniques for dealing with sensory deficits (tactile defense, visual - kinesthetic - vestibular adaptation, integration, etc.). Practical application.*

#### **Section 7. Guided (inductive) intervention model**

- *Theoretical background - basic principles of guidance (inductive) education - Peto. Connection with other models of physiotherapy intervention. Equipment.*
- *Basic techniques and means of dealing with disorders. Practical application.*
- *Unit 8. Motor education. Functional work-oriented physiotherapy*
- *Theoretical basis - basic principles.*
- *Project-oriented, goal-oriented approach adapted to functional activities - goals. Description of the activity. Factors affecting performance. Motor dysfunction and training. Practical application.*

#### **Section 9. Detailed model of physiotherapy intervention**

- *Muscular strengthening. The application of muscle strengthening techniques in the treatment of muscle weakness, muscle imbalance, in the increase of muscle strength, in the promotion of vigor and in the improvement of functional skills.*
- *Connection of muscle strengthening techniques with physiotherapy approaches - techniques. Practical application.*

#### **Section 10. Other physiotherapy approaches. Complementary therapies**

- *Other physiotherapy approaches (Fay, PNF, Rood, Feldenkrais etc.) - application of therapeutic techniques.*
- *Therapeutic riding - Horse therapy, hydrokinesiotherapy, play therapy, treatment with the use of special rubber suits etc.*
- *Combined - selective approach. Basic principles - theoretical basis. Composition of treatment systems. The selective perspective on therapy. Practical application.*

#### Section 11. Training of the function of the upper extremity

- *Description of the functions - activities of the upper limb (fine mobility, handles, manipulations). Motor dysfunction. Recovery of upper limb function. Practical training adapted to functional goals.*
- *Restrictive-induced and forced treatment (CIMT-FUT).*
- *Use of special devices for functional retraining of the hand limb.*
- *Evaluation of fine mobility. Evaluation tests (ARA, GUEST, PDMS-FM etc.)*

#### Section 12. Self-care - Autonomy of children with neurological disorders

- *Movement training with the use of special aids and orthotics (AFO's, guardians, parallel bars, suspension systems, treadmill, etc.).*
- *Special equipment - mobility aids. Selection - use (wheelchairs, walkers, orthopedics, etc.).*
- *Ergonomics and self-service. Use of computer systems and special software.*

#### Section 13. Clinical reasoning and problem solving in the rehabilitation of pediatric neurological diseases (introduction). Linking theory with practice and practice with theory

- *The process of clinical reasoning and decision making in the treatment of pediatric neurological diseases. Decision making models, reasoning and problem solving strategy in practice.*
- *Practical clinical approach to clinical reasoning and decision making in physiotherapy of pediatric neurological diseases. The hypothetical-productive approach.*
- *Planning programs and setting goals.*

#### Section 14. Final assessment of students

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.*

### TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>THE CLINICAL EXERCISE OF THE COURSE IS CARRIED OUT IN SPECIAL AREAS WITH THE TRAINING AND GUIDANCE OF SPECIALIZED AND EXPERIENCED CLINICAL PHYSIOTHERAPISTS AND CLINICAL EQUIPMENT</p> <p><i>Theoretical part:</i>  <i>Many teaching techniques and tools are included like:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</i></li> <li>• <i>Discussion in the classroom and feedback</i></li> <li>• <i>Work in small groups or individually</i></li> <li>• <i>Student presentations</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</i></li> <li>• <i>Visiting speakers after the approval of the Department</i></li> </ul> <p><i>Clinical practice:</i>  <i>The clinical practice of the course is conducted in the hospital with the training and guidance of specialized and experienced clinical physiotherapists and with the use of nursing, laboratory and clinical equipment:</i></p> <ul style="list-style-type: none"> <li>• <i>Demonstration and application of methods and techniques applied in the rehabilitation of the patient in the hospital</i></li> <li>• <i>Demonstration and application of the laboratory equipment of the hospital</i></li> <li>• <i>Clinical practice of students in small groups</i></li> <li>• <i>Presentations of clinical cases by students</i></li> <li>• <i>Analysis - presentation of clinical cases</i></li> <li>• <i>Clinical application</i></li> </ul>	
TEACHING METHODS	Activity	Semester workload
	Lectures	26 hours



	<i>Clinical Practice</i>	<i>65hours</i>
	<i>Study of bibliography</i>	<i>84 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>175 hours (7 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course: a final written evaluation is carried out which includes questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 50% of the final score (weight factor 0.5).</li> <li>• for the clinical part of the course: oral examinations, assignment, presentation and application of the physiotherapy intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of the evaluation sheets of the patients by the students. In each course, the students' participation and their ability to respond adequately to the treatment of the clinical case that is being addressed are evaluated by the teachers. Successful or not, intervention used under the guidance of the teacher is evaluated. Specifically, the examination is based on the patient's ability to approach, the order of evaluation, his ability to set short-term and long-term therapeutic goals and the application of appropriate physiotherapy techniques. The student must have successfully completed the set of specific physiotherapy interventions that cover all physiotherapy techniques in each clinic that is employed. The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the clinical practice is from 0-10 and is determined by the daily clinical presence of the student and is equally calculated by the grade he collects in each clinical placement he performs. The severity of the final examinations in the clinical part corresponds to 50% of the final score (severity coefficient 0.5)</li> </ul>	

### ATTACHED BIBLIOGRAPHY

#### - Suggested bibliography

1. Palisano R., Orlin M., Schreiber J. (2021) *Campbell's Φυσικοθεραπεία Για Παιδιά*, Broken-Hill Publisher, Λευκωσία
2. Bly L. *Components of Typical and Atypical Motor Development*, 1<sup>st</sup> edition, NDTA, 2011
3. Bly L, *Baby Treatment Based on NDT Principles*, 1<sup>st</sup> edition, *Communication Skill Builders*, 1999
4. Kessler M. *Φυσικοθεραπευτικές Παρεμβάσεις σε Ασθενείς με Νευρολογικές Παθήσεις*.(2015) Εκδόσεις Κωνσταντάρας
5. Συρεγγέλλας Δ, Σιαχανίδου Τ, Χρουσός Γ. (2017) *Αξιολόγηση της κινητικής εξέλιξης του αναπτυσσόμενου βρέφους*. Αθήνα, Επιστημονικές Εκδόσεις Παρισιάνου
6. Levitt S. (2014) *Θεραπεία της Εγκεφαλικής Παράλυσης και της Κινητικής Καθυστέρησης*. (Μετάφραση Αγγλικής Έκδοσης), Επιστημονικές Εκδόσεις Παρισιάνου, Αθήνα.
7. Shepherd R. (2013) *Εγκεφαλική παράλυση στην βρεφική ηλικία*. *Health Action*.
8. Scrutton D, Damiano D, Mayston M. (2009) *Αντιμετώπιση των κινητικών διαταραχών στα παιδιά με εγκεφαλική παράλυση*. Επιστημονικές Εκδόσεις Παρισιάνου, Αθήνα
9. Freeman Miller (2007) *Physical Therapy Of Cerebral Palsy*, Springer

### 3.2.4 RESEARCH METHODOLOGY - WRITING SCIENTIFIC ESSAY

SCHOOL	SCHOOL OF HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	PHYS_31	SEMESTER	6 <sup>th</sup>
COURSE TITLE	RESEARCH METHODOLOGY- WRITING SCIENTIFIC ESSAY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
LECTURES		3	6
LABORATORY PRACTICE		1	
COURSE TYPE	GENERAL BACKGROUND		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

#### LEARNING OUTCOMES

<b>Learning outcomes</b>
<p>The student at the end of the course will be able to:</p> <ol style="list-style-type: none"> <li>1. recognize the need for research in physiotherapy,</li> <li>2. use the basic principles and steps in carrying out a research (qualitative or quantitative),</li> <li>3. use the appropriate research design and protocol for investigating a research question,</li> <li>4. use basic descriptive statistics concepts such as average, mean value, standard deviation, standard error, curvature, etc. in a survey,</li> <li>5. recognize the problems of research in articles and critiques them,</li> <li>6. apply the rules of ethics and ethics when conducting research,</li> <li>7. recognize the importance of the concepts of reliability and validity in both research and clinical practice,</li> <li>8. use and interprets simple statistical tests for data analysis,</li> <li>9. use international databases to find information in the field of health,</li> <li>10. design and conducts research with methodological steps and documented practices,</li> </ol>

11. use the various statistical programs to enter and analyze data of a survey,
12. present the results of a survey to the general public.

### General Competences

- Critical thinking.
- Finding and processing information.
- Decision making.
- Search, analysis & synthesis of data & information, using the necessary technologies.
- Promoting free, creative and inductive thinking.
- Production of new research ideas.
- Autonomous work - Group work.

### SYLLABUS

#### A. Contents of the theoretical part of the course.

##### Section 1. Introduction, concept and forms of research, English course terminology

- Introduction to Research in Health Sciences - Physiotherapy.
- Scientific methods of problem solving.
- Types of research.
- English terminology of the course

##### Section 2. Sources of information - Review of articles - Bibliography - Design of Scientific Study

- Bibliography search by electronic and non-electronic means.
- Information retrieval sources and databases.
- Information retrieval strategies.
- Research problem.
- Research proposal.
- Research cases - Research questions.
- Pilot study.

##### Section 3. Research protocols - Sampling

- Research protocol - Research proposal.
- Access to the population and sample selection.
- Sampling methods.
- Criteria for selection and exclusion of a sample.

##### Section 4. Principles of reliability and validity

- Reliability of measuring instruments.
- Types of reliability (repeatability, test-retest, stability, internal consistency).
- Types of validity in research (concurrent, discriminant, factorial validity etc.).
- Development and cross-cultural adaptation of a questionnaire

##### Section 5. Descriptive research in Physiotherapy I

- Definitions.
- Categories and critique of descriptive research.
- Development of questionnaires - ranking scales.
- Interview.
- Descriptive research.

##### Section 6. Descriptive research in Physiotherapy II

- Correlation research.
- Case study.
- Descriptive research.

##### Section 7. Experimental research in Physiotherapy I

- Threats to research.
- Internal and external validity.
- Types of research designs.
- Data collection methods – Experimental variables (independent, dependent etc.).
- Measuring scales.
- Statistics in health research.

##### Section 8. Ethics of Research

- Categories of scientific unethical issues.
- Ethical issues of copyright.
- Plagiarism.
- Protection of persons participating in the investigation.
- Consent forms for participation in research.

**Section 9. Qualitative research in Physiotherapy**

- *Procedure for conducting qualitative research.*
- *Internal and external validity in qualitative research.*
- *Data collection tools.*

**Section 10. Systematic review - meta-analysis**

- *What is systematic review and meta-analysis.*
- *Cochrane Collaboration.*
- *Procedure for conducting systematic review and meta-analysis.*
- *Information retrieval strategies for systematic review.*

**Section 11. Statistical analysis and Interpretation of results**

- *Probabilities - Distribution parameters. Allocation position measures. Various distributions.*
- *Average value, standard deviation.*
- *Measures of asymmetry, Slope,*
- *Descriptive statistics.*
- *Parametric and non-parametric data.*
- *Basic statistical tests for data analysis.*
- *Correlation between variables.*
- *Scatter variance analysis.*
- *Error in search.*

**Section 12. Critique of published research**

- *Hierarchy of scientific documentation.*
- *Key points for the critique of a published research.*
- *Recognition of threats in published research in Physiotherapy*

**Section 13. Presentation of research results - article writing - oral and poster presentation**

- *Basic instructions for writing a study.*
- *Procedure for publishing a scientific article.*
- *Methods and basic principles of presenting the results of a research.*
- *Methods and systems of writing research study.*
- *English terminology related to the subject of the course.*

**Section 14. Final evaluation**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**B. Contents of the laboratory of the course.****Section 1. Primary and secondary sources of information data**

- *Practical application on the internet in general search engines (Google Scholar, Yahoo, etc.) and in special search engines (Medline, Pubmed, Pedro, EMBASE, AMED, Ovid, Sport Discus, etc.).*
- *Search strategies for randomized clinics and other studies (RCTs, etc.).*
- *Examples and applications. Student evaluation.*
- *Machines for finding articles and books in the network of Greek libraries.*
- *Examples and applications. Student evaluation.*

**Section 2. Demonstration and learning of the use of statistical analyses**

- *Statistical program SPSS.-Excel.*
- *Probabilities - Distribution parameters.*
- *Parametric tests.*
- *Non-parametric tests.*
- *Analysis of variance(ANOVA)-MANOVA etc*
- *Reliability and validity tests.*

**Section 3. Conducting "hypothetical" research I.**

- *Search information in databases.*
- *Descriptive research - Correlation study*
- *Examples and applications. Student evaluation.*

**Section 4. Conduct of "hypothetical" research II**

- *Search information in databases.*
- *Development of a questionnaire*
- *Cross cultural adaptation of a questionnaire*
- *Examples and applications. Student evaluation.*

**Section 5. Preparation of a research proposal**

- *Examples and applications. Student evaluation.*

**Section 6. Conduct of "hypothetical" research III**

- Search information in databases.
- Experimental research I.
- Data analysis.
- Examples and applications. Student evaluation.

**Section 7. Create a presentation using slides and Powerpoint**

- Ways of oral presentation of research results using Powerpoint.
- Create a Powerpoint presentation.
- Examples and applications. Student evaluation.

**Section 8. Create a presentation using slides and Powerpoint**

- Examples and applications. Student evaluation.

**Section 9. Create a presentation using slides and Powerpoint**

- Examples and applications. Student evaluation.

**Section 10. Critique of published research**

- Critical analysis of a published article by groups.
- Examples and applications. Student evaluation.

**Section 11. Critique of published research**

- Critical analysis of a published article by groups.
- Examples and applications. Student evaluation.

**Section 12. Writing a scientific paper - Publication process**

- Demonstration of key points in the writing of a scientific paper.
- Demonstration and implementation of report writing software (eg. Reference Manager, EndNote etc).
- Ways to write the names of authors of a scientific article.
- Create a letter to the publisher.
- Examples and applications. Student evaluation.

**Section 13. Creating a poster presentation**

- Development and poster presentation using PC and specialized software (eg. Powerpoint, Office Publisher, etc).
- Examples and applications. Student evaluation

**Section 14. Final evaluation of students**

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below

**TEACHING and LEARNING METHODS – EVALUATION**

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Many teaching techniques and tools are included, like: <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</li> <li>• Discussion in the classroom and feedback</li> <li>• Work in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</li> <li>• Visiting speakers after the approval of the Department</li> </ul>	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory practice</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>98 hours</i>

	Course total (25 hours workload per credit unit)	150 ώρες (6 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course: A final written evaluation is carried out which includes questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 50% of the final score (weight factor 0.5)</li> <li>• for the laboratory part of the course: The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 50% of the final score (weight factor 0.5)</li> </ul>	

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1. Thomas, J., Nelson, J. Μέθοδοι Έρευνας Στη Φυσική Δραστηριότητα, Εκδόσεις Πασχαλίδη 2003.
2. Bowling A. Μεθοδολογία Έρευνας στην Υγεία, Broken Hill Publishers LTD, 2013.
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5. Hicks C. Research For Physiotherapist , Εκδόσεις Churchill Livingstone 1999.
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10. Παρασκευόπουλου, Ι. Μεθοδολογία Επιστημονικής Έρευνας, Αθήνα 1993.
11. Σαχίνη Καρδάση Α. Μεθοδολογία Της Έρευνας. Εφαρμογή στο χώρο της υγείας, Εκδόσεις ΒΗΤΑ 1996.
12. Bowers D. Θεμελιώδεις έννοιες στη Βιοστατιστική, Broken Hill Publishers LTD, 2011.
13. Δημόπουλος, Π. Βιομετρία, Βιοστατιστική, Εκδόσεις Σταμούλη, 2004.
14. Κτενάς, Ε. Βιοστατιστική, Αρχές επιδημιολογίας, Εκδόσεις Παρισιάνου, 1992.
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22. Creswell, J. (2016). Η Έρευνα στην Εκπαίδευση. Σχεδιασμός, Διεξαγωγή και Αξιολόγηση Ποσοτικής και Ποιοτικής Έρευνας (Επιμ.: Χ. Τσορμπατζούδης, 2η έκδ.). Αθήνα: Ίων.
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## 3.2.5 CLINICAL EXERCISE PHYSIOLOGY

SCHOOL	SCHOOL OF HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	PHYS_32	SEMESTER	6 <sup>th</sup>
COURSE TITLE	CLINICAL EXERCISE PHYSIOLOGY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	INDEPENDENT TEACHING ACTIVITIES
LECTURES		2	4
LABORATORY PRACTICE		1	
COURSE TYPE	GENERAL BACKGROUND		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<i>The student will be able after the end of the course to:</i>
<ol style="list-style-type: none"> <li>1. recognize the mechanisms and results of the application of exercise in the physiology of the various systems of the human body (nervous, muscular, cardiovascular, respiratory, endocrine, immune) to be able to apply it in the context of physiotherapy rehabilitation effectively and safely,</li> <li>2. recognize and take into account the factors that determine the design of exercise programs but also the factors that shape its characteristics and progressiveness (health status, gender, age, etc.);</li> <li>3. plan therapeutic exercise programs for groups of the population at risk of chronic diseases with the aim of promoting good health and well-being.</li> </ol>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Adaptation to new situations</li> </ul>

- Search, analysis and synthesis of data and information, using the necessary technologies
- Decision making
- Autonomous work
- Teamwork

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Introduction to the course of Clinical Exercise Physiology

- Definition of Clinical Exercise Physiology.
- Historical background of the fundamental theories of Clinical Exercise Physiology.
- Relationship between experimental and clinical physiology of the systems of the human body and how the application of exercise affects them (acute and chronic adaptations).
- What is the role of the physiotherapist in the Rehabilitation of Clinical Population Groups (athletes, patients with respiratory dysfunction, patients with cardiovascular dysfunction, the elderly, etc.) through therapeutic exercise programs.

#### Section 2. Muscle function and exercise (I)

- Structure and function of skeletal muscle (microscopic and macroscopic).
- Skeletal muscle and exercise (muscle fibers, protein synthesis).
- Muscle action (types of contraction, mechanical properties of muscle, muscle strength, muscular endurance and strength)
- Muscle activity in Clinical Population Groups (aging, immobilization, etc.).

#### Section 3. Muscle function and exercise (II)

- Muscle performance and impact factors
- Muscle adjustments and exercise
- Muscle performance and adaptations to the pathology (atrophy, inhibition, selective activation of muscle fibers)
- Evaluation of muscle performance
- Fatigue (items and mechanisms)
- Muscle performance in Clinical Population Groups
- Exercise program design to improve muscle performance (strength, endurance, strength) - personalized definition and progressiveness (exercise prescription)

#### Section 4. Nervous system and exercise

- Structure and function of the nervous system (central and peripheral).
- Motor unit, neurons and exercise.
- Connection and process of impulse transfer, stimulation and interception.
- Voluntary and involuntary movement, receptors.
- Adaptations of nervous mechanisms in pathology (CNS diseases, peripheral nervous system, pain and inflammation, etc.).

#### Section 5. Kinesthetic control and exercise

- Kinesthetic control and movement.
- Kinesthetic control systems.
- Neuroplasticity (concept, mechanisms).
- Motor Learning (stages, mechanisms, applications).
- Special issues concerning the clinical application of the exercise and the kinesthetic control.

#### Section 6. Metabolism and basic energy systems - energy for movement

- Energy sources
- Energy systems (phosphorogen, glycolytic and oxidative system)
- Energy balance
- Participation of energy mechanisms and Exercise
- Energy costs at rest and exercise
- Energy phases of muscular effort
- Methods of calculating energy expenditure during exercise

#### Section 7. Cardiovascular adaptations to exercise

- Structure and function of the cardiovascular system (cardiovascular supply, blood pressure, local blood flow.
- Acute and chronic cardiovascular responses to exercise (aerobic exercise, static exercise, neural control of cardiovascular responses).
- Exogenous effects on cardiovascular responses (prolonged exercise, intermittent exercise, involvement of participating limbs, body position, etc.).
- Special issues concerning the clinical application of exercise and the cardiovascular system.

#### Section 8. Respiratory adjustments to exercise

- Structure and function of the respiratory system (breathing apparatus, ventilation and mechanical engineering, exchange and transport of blood gases).
- Acute and chronic respiratory responses to exercise.
- Special issues concerning the clinical application of exercise and the respiratory system.



### Section 9. Aerobic capacity

- *Maximum oxygen uptake.*
- *Aerobic capacity assessment methods.*
- *Factors affecting aerobic capacity.*
- *Limiting factors of aerobic capacity.*
- *Exercise program design to improve aerobic capacity, personalized definition and progressiveness (exercise prescription).*
- *Special issues concerning Clinical Population Groups.*

### Section 10. Anaerobic capacity

- *Calculation of anaerobic power and capacity.*
- *Anaerobic capacity assessment.*
- *Lactic acid and exercise.*
- *Lactic acid and clinical significance.*
- *Factors affecting anaerobic capacity.*
- *Exercise program design to improve anaerobic capacity, personalized definition and progressiveness (exercise prescription).*
- *Special issues concerning Clinical Population Groups.*

### Section 11. Nutrition and body composition

- *Macromolecular, micromolecular nutrients and water.*
- *Exercise and food intake (carbohydrates, water, electrolytes).*
- *Dietary supplements and exercise.*
- *Nutrition evaluation methods.*
- *Rough composition of the human body.*
- *Methods for determining body composition.*
- *Body mass index.*
- *Obesity, energy balance.*
- *Special issues concerning Clinical Population Groups.*

### Section 12. Exercise and hormones - immune system

- *Structure and function of the endocrine system.*
- *Endocrine function and exercise.*
- *Special issues concerning the clinical application of exercise and endocrine system.*
- *Structure and function of the immune system.*
- *Immune response and exercise.*
- *Special issues concerning the clinical application of exercise and the immune system.*

### Section 13. Special topics in Clinical Exercise Physiology

- *Risk of Exercise in Clinical Population Groups - pre-exercise assessment, determination of risk factors.*
- *Exercise in different or extreme environments (cold, heat, infection, altitude).*
- *Genetics and exercise.*
- *Biopsychosocial Medical Model and changes in body systems.*
- *English terminology related to the subject of the course.*

### Section 14. Final assessment of students

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## B. Contents of the clinical practice of the course.

### Section 1. Introduction to the course of Clinical Occupational Physiology

- *Introduction to the lab, introduction to experiment design, participant evaluation, and preparation for an exercise test according to ACSM (American College of Sports Medicine) guidelines.*

### Section 2. Muscle contraction

- *Muscle energy potential, muscle tone, factors that affect muscle performance (limb laterality, sex, mechanical properties of muscle, etc.), differences in calmness and maximum effort. Practical training with the help of laboratory equipment (electromyograph, dynamometer, special educational software).*

### Section 3. Fatigue

- *Dynamometer, activation of motor units, central and peripheral fatigue. Practical training with the help of laboratory equipment (electromyograph, hand dynamometer, special educational software).*

### Section 4. Reaction time

- *Reaction time after stimulus, impact factors (learning effect), member laterality, gender, concentration, fatigue, etc.), motor learning (periodicity and randomization). Practical training with the help of laboratory equipment (headphones - sound stimulus, stimulus detector, special educational software).*

### Section 5. Muscle performance

- Evaluation of muscle performance, processing of results with the aim of designing an exercise program, personalized definition and progressiveness (exercise prescription). Practical training with the help of laboratory equipment (dynamometers, tires, special educational software).

#### Section 6. Biological feedback - biofeedback during muscle function

- Parasympathetic and autonomic system during exercise (heartbeat & stimulation level), biofeedback function in the contraction-relaxation process. Practical training with the help of laboratory equipment (biofeedback system, special educational software).

#### Section 7. Cardiovascular function and exercise

- Effect of exercise and body position on heart rate. Practical training with the help of laboratory equipment (electrocardiograph, telemetry heart rate monitor, special educational software).

#### Section 8. Respiratory function and exercise

- Effect of exercise on respiratory function. Hypoventilation, hyperventilation, respiration rate, ventilation regulation. Practical training with the help of laboratory equipment (population scanner, temperature measuring device, special educational software).

#### Section 9. Aerobic capacity (I)

- Aerobic capacity assessment. Practical training with the help of laboratory equipment (cycle ergometer, floor ergometer, electrocardiography, telemetric ergospirometer, telemetric heart rate monitor, special educational software)

#### Section 10. Aerobic capacity (II)

- Assessment of aerobic capacity, processing of results with the aim of designing an exercise program, personalized definition and progressiveness (exercise prescribing). Practical training with the help of laboratory equipment (cycle ergometer, floor ergometer, electrocardiography, telemetric ergospirometer, telemetric heart rate monitor, activist, special educational software).

#### Section 11. Anaerobic capacity

- Evaluation of anaerobic capacity and processing of results with the aim of designing an exercise program, personalized definition and progressiveness (exercise prescribing). Practical training with the help of laboratory equipment (cycle ergometer, floor ergometer, lactic acid analyzer, electrocardiography, telemetric heart rate monitor, special educational software).

#### Section 12. Nutrition assessment

- Practice nutrition assessment: 24-hour diet recording and analysis of nutrients and calories.

#### Section 13. Body composition

- Body composition assessment. Practical training with the help of laboratory equipment (caliper, special educational software).

#### Section 14. Final assessment of students.

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

### TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	FACE TO FACE
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>The teaching methods of the course theory include many teaching methods and means, among which:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</li> <li>• Class discussion and feedback</li> <li>• Work in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Internet, multimedia, online chat through asynchronous education platform and e-mail)</li> </ul> <p>The laboratory part of the course is taught using the following methods and tools:</p> <ul style="list-style-type: none"> <li>• Use of Information and Communication Technologies (ICT) (Internet, multimedia, online chat through asynchronous education platform and e-mail)</li> <li>• Demonstration and implementation of software and programs related to the course (statistical programs, presentation programs, etc.)</li> <li>• Work in small groups</li> <li>• Student presentations</li> </ul>

TEACHING METHODS	Activity	Semester workload
	Lectures	26 hours
	Laboratory	13 hours
	Study of bibliography	61 hours
	Course total (25 hours workload per credit unit)	100 hours (4 ECTS)
STUDENT PERFORMANCE EVALUATION	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course: A final written evaluation is carried out which includes questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</li> <li>• for the laboratory part of the course: The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</li> </ul>	

#### ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

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4. 4<sup>th</sup> YEAR4.1 7<sup>th</sup> SEMESTER

## 4.1.1 THERAPEUTIC EXERCISE IN CHRONIC DISEASES

SCHOOL	SCHOOL OF HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	PHYS_34	SEMESTER	7 <sup>th</sup>
COURSE TITLE	THERAPEUTIC EXERCISE IN CHRONIC DISEASES		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
LECTURES		3	5
LABORATORY PRACTICE		1	
COURSE TYPE	SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<i>Upon completion of the course, the student will be able to design therapeutic exercise programs using the most appropriate tools and methods adapted to each clinical group.</i>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Critical thinking.</li> <li>• Finding and processing information.</li> <li>• Decision making.</li> <li>• Promoting free, creative and inductive thinking.</li> <li>• Production of new research ideas.</li> </ul>

## SYLLABUS

## A. Contents of the theoretical part of the course.

### Section 1. Introduction to the course therapeutic exercise in chronic diseases

- *Exercise as a treatment / medicine.*
- *Therapeutic exercise and benefits - evidence based.*
- *Principles of organizing group therapeutic exercise.*
- *Structure, organization of a group of patients with chronic diseases.*
- *Structure, organization of a support specialties group.*
- *Patient evaluation - inclusion criteria.*

### Section 2. Health assessment and exercise risk assessment

- *Sudden cardiac death in young people and adults.*
- *Fatigue tests and risk of heart attacks.*
- *Risk of cardiac events during rehabilitation.*
- *Prevention of exercise-related cardiac events.*
- *Methods of checking health status before participating in an exercise program.*
- *Ergopiometry recommendations before the start of exercise.*
- *Procedure for assessment of risk factors of KA disease and risk classification.*
- *Risk rating for patients with chronic diseases - degree of supervision during exercise.*

### Section 3. Objectives of the pre-training evaluation

- *Basic principles and guidelines of pre-exercise assessment.*
- *Organization of tests.*
- *Measurement procedure at rest (HR, BP, Height, Weight, Body composition, BMI).*
- *Procedure of muscle performance measurements (strength, elasticity, functional performance).*
- *Gait / mobility test procedure.*
- *Balance test procedure.*
- *Aerobic / endurance testing procedure.*

### Section 4. General principles of therapeutic exercise

- *General principles of individualized choice of parameters (prescription) (Ex Rx) of exercise.*
- *Therapeutic exercise session parameters.*
- *Personalized selection of parameters (prescription) of aerobic exercise.*
- *Personalized choice of parameters (prescription) of exercise for muscle strength.*
- *Personalized choice of parameters (prescription) of exercise for flexibility.*
- *Personalized choice of parameters (prescription) of exercise for neuromuscular control.*

### Section 5. Obstacles to exercise, behavior change, motivation

- *Evaluation of exercise barriers.*
- *Strategies and incentives to overcome exercise barriers.*
- *Evaluation of stages of behavior change.*

### Section 6. Patient-centered approach of a patient with chronic disease

- *Patient education and achieving consistency in treatment.*
- *Patient learning types – evaluation.*
- *Patient education (means of education, benefits, differences).*
- *Patient education for self-management of the disease.*

### Section 7. Group therapy exercise in patients with chronic disease

- *Benefits of group therapeutic exercise.*
- *Organization of group therapeutic exercise (environment, equipment, patient selection, particularities).*
- *Types of group therapeutic exercise.*
- *General principles of group therapeutic exercise.*

### Section 8. Therapeutic exercise in patients with chronic metabolic diseases

- *Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of exercise on exercise parameters in patients with chronic metabolic diseases.*
- *Evaluation and rehabilitation programs in patients with hyperlipidemia, chronic renal failure, diabetes, obesity, anorexia nervosa.*

### Section 9. Therapeutic exercise in patients with chronic mental illness

- *Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of medication on exercise parameters in patients with chronic mental illness.*
- *Evaluation and rehabilitation programs in patients with schizophrenia, depression, substance abuse, sleep problems, anxiety disorders, mental disability.*

### Section 10. Therapeutic exercise in patients with chronic hematological diseases and immune diseases

- Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of exercise on exercise parameters in patients with chronic hematological diseases and immune diseases.
- Evaluation and rehabilitation programs in patients with cancer, HIV, chronic organ failure (pancreas, liver, kidneys).

### **Section 11. Therapeutic exercise in patients with chronic musculoskeletal disorders**

- Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of medication on exercise parameters in patients with chronic musculoskeletal disorders.
- Evaluation and rehabilitation programs in patients with arthritis, chronic dysfunction of OMS and AMSS, in postoperative musculoskeletal patients.
- Chronic pain of central awareness, provocation mechanisms, coping techniques.
- Pathophysiology, effect - benefits of exercise therapy, effect of medication, evaluation and rehabilitation programs in patients with chronic fatigue syndrome and fibromyalgia.

### **Section 12. Therapeutic exercise in the elderly**

- Pathophysiology, effect-benefits- evidence based therapeutic exercise, effect of medication on the parameters of exercise in the elderly.
- Peculiarities of the elderly in terms of motor control, gait and cardio-respiratory system.
- Peculiarities of the elderly in terms of the application of therapeutic exercise.
- Special issues concerning rehabilitation in the elderly (accompanying health problems, treatment in KAPI).
- Prevention of falls in the elderly.
- Therapeutic exercise and osteoporosis.

### **Section 13. Special issues in therapeutic exercise in chronic diseases**

- Green therapeutic exercise in patients with chronic disease.
- Prevention of chronic diseases and therapeutic exercise.
- Chronic disease in a child-adolescent and benefits of therapeutic exercise.
- Intercultural differences in approach - communication with the patient - intercultural adaptation of measuring instruments, differences in consciousness of good health, disease, death, intercultural differences in diseases.
- English terminology related to the subject of the course.

### **Section 14. Final assessment of students**

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

## **B. Contents of the clinical practice of the course.**

### **Section 1. Introduction to the course therapeutic exercise in chronic diseases**

- Exercise as a treatment / medicine.
- Therapeutic exercise and benefits - evidence based.
- Principles of organizing group therapeutic exercise.
- Structure, organization of a group of patients with chronic diseases.
- Structure, organization of a support specialties group.
- Patient evaluation - inclusion criteria.
- Examples and applications
- Assessment of students

### **Section 2. Health assessment and exercise risk assessment**

- Sudden cardiac death in young people and adults.
- Fatigue tests and risk of heart attacks.
- Risk of cardiac events during rehabilitation.
- Prevention of exercise-related cardiac events.
- Methods of checking health status before participating in an exercise program.
- Ergopirometry recommendations before the start of exercise.
- Procedure for assessment of risk factors of KA disease and risk classification.
- Risk rating for patients with chronic diseases - degree of supervision during exercise.
- Examples and applications.
- Assessment of students.

### **Section 3. Objectives of pre-exercise evaluation**

- Basic principles and guidelines of pre-exercise assessment.
- Organization of tests.
- Measurement procedure at rest (HR, BP, Height, Weight, Body composition, BMI).
- Procedure of muscle performance measurements (strength, elasticity, functional performance).
- Gait / mobility test procedure.
- Balance test procedure.
- Aerobic / endurance testing procedure.
- Examples and applications.
- Assessment of students.

#### **Section 4. General principles of therapeutic exercise**

- *General principles of individualized choice of parameters (prescription) (Ex Rx) of exercise.*
- *Therapeutic exercise session parameters.*
- *Personalized selection of parameters (prescription) of aerobic exercise.*
- *Personalized choice of parameters (prescription) of exercise for muscle strength.*
- *Personalized choice of parameters (prescription) of exercise for flexibility.*
- *Personalized choice of parameters (prescription) of exercise for neuromuscular control.*
- *Examples and applications.*
- *Assessment of students.*

#### **Section 5. Obstacles to exercise, behavior change, motivation**

- *Evaluation of exercise barriers.*
- *Strategies and incentives to overcome exercise barriers.*
- *Evaluation of stages of behavior change.*

#### **Section 6. Patient-centered approach of a patient with chronic disease**

- *Patient education and achieving consistency in treatment*
- *Patient learning types – evaluation.*
- *Patient education (means of education, benefits, differences).*
- *Patient education for self-management of the disease.*
- *Examples and applications.*
- *Assessment of students.*

#### **Section 7. Group therapy exercise in patients with chronic disease**

- *Benefits of group therapeutic exercise.*
- *Organization of group therapy exercise (environment, equipment, patient selection, particularities).*
- *Types of group therapeutic exercise.*
- *General principles of group therapeutic exercise.*
- *Examples and applications.*
- *Assessment of students.*

#### **Section 8. Therapeutic exercise in patients with chronic metabolic diseases**

- *Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of medication on exercise parameters in patients with chronic metabolic diseases.*
- *Evaluation and rehabilitation programs in patients with hyperlipidemia, chronic renal failure, diabetes, obesity, anorexia nervosa.*
- *Examples and applications.*
- *Assessment of students.*

#### **Section 9. Therapeutic exercise in patients with chronic mental illness**

- *Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of medication on exercise parameters in patients with chronic mental illness*
- *Evaluation and rehabilitation programs in patients with schizophrenia, depression, substance abuse, sleep problems, anxiety disorders, mental disability*
- *Examples and applications*
- *Assessment of students*

#### **Section 10. Therapeutic exercise in patients with chronic hematological diseases and immune diseases**

- *Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of exercise on exercise parameters in patients with chronic hematological diseases and immune diseases.*
- *Evaluation and rehabilitation programs in patients with cancer, HIV, chronic organ failure (pancreas, liver, kidneys)*
- *Examples and applications.*
- *Assessment of students.*

#### **Section 11. Therapeutic exercise in patients with chronic musculoskeletal disorders**

- *Pathophysiology, effect-benefits- evidence-based therapeutic exercise, effect of medication on exercise parameters in patients with chronic musculoskeletal disorders.*
- *Evaluation and rehabilitation programs in patients with arthritis, chronic dysfunction of OMS and AMSS, in postoperative musculoskeletal patients.*
- *Chronic pain of central awareness, provocation mechanisms, coping techniques.*
- *Pathophysiology, effect - benefits of exercise therapy, effect of medication, evaluation and rehabilitation programs in patients with chronic fatigue syndrome and fibromyalgia.*
- *-Examples and applications.*
- *Assessment of students.*

#### **Section 12. Therapeutic exercise in the elderly**

- *Pathophysiology, effect-benefits- evidence based therapeutic exercise, effect of medication on the parameters of exercise in the elderly.*
- *Peculiarities of the elderly in terms of motor control, gait and cardio-respiratory system.*

- Peculiarities of the elderly in terms of the application of therapeutic exercise.
- Special issues concerning rehabilitation in the elderly (accompanying health problems, treatment in KAPI).
- Prevention of falls in the elderly.
- Therapeutic exercise and osteoporosis.
- Examples and applications.
- Assessment of students.

### Section 13. Special issues in therapeutic exercise in chronic diseases

- Green therapeutic exercise in patients with chronic disease.
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- Chronic disease in a child-adolescent and benefits of therapeutic exercise
- Intercultural differences in approach - communication with the patient - intercultural adaptation of measuring instruments, differences in consciousness of good health, disease, death, intercultural differences in diseases.
- Examples and applications.
- Assessment of students.

### Section 14. Final assessment of students

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

## TEACHING and LEARNING METHODS – EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>The methods of teaching the theoretical part of the course include:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>• Class discussion and feedback.</li> <li>• Work in small groups or individually.</li> <li>• Student presentations.</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</li> <li>• Visiting speakers (after a decision of the sector).</li> </ul> <p>The laboratory part of the course is taught using the following methods and tools:</p> <ul style="list-style-type: none"> <li>• Demonstration and application of the methods and techniques of the course by the teacher and application by pairs of students.</li> <li>• Demonstration and application of laboratory equipment.</li> <li>• Work in small groups.</li> </ul>	
TEACHING METHODS	Activity	Semester workload
	Lectures	39 hours
	Laboratory practice	13hours
	Study of bibliography	73 hours
	Course total (25 hours workload per credit unit)	125 hours (5 ECTS)
STUDENT PERFORMANCE EVALUATION	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the</p>	



*final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).*

*• for the laboratory part of the course:*

*The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).*

## ATTACHED BIBLIOGRAPHY

### - Suggested bibliography:

1. *Williamson P. Θεραπευτική Άσκηση για Ειδικούς Πληθυσμούς. Κωνσταντάρας, 2016.*
2. *Dustine J., Moore G. ACSM's Άσκηση Χρόνιες παθήσεις και αναπηρίες, BROKEN HILL PUBLISHERS LTD, 2005.*
3. *Kenney W. Larry. ACSM 's Αξιολόγηση και Σχεδιασμός Προγραμμάτων Άσκησης-Οδηγίες της Αμερικάνικης Αθλητιατρικής Εταιρείας / American College of Sports Medicine, American College of Sports Medicine , BROKEN HILL PUBLISHERS LTD, 2014.*
4. *Καπρέλη Ε, Κορτιάνου Ε, Πέπερα Γ, Αργυρού Σ, Πουλής Ι. Πρόληψη καρκίνου του πεπτικού συστήματος μέσω της άσκησης. Ηπιόνη 2019.*
5. *Michael Gleeson. Immune function in sport and exercise, Edinburgh: Elsevier/Churchill Livingstone, 2006.*
6. *Suzann K. Campbell, Robert J. Palisano, Darl W. Vander Linden. Physical Therapy for Children, Saunders; 3 edition, 2005.*
7. *Jan Stephen Tecklin. Pediatric Physical Therapy, Lippincott Williams & Wilkins; 4th edition , 2007.*
8. *Kevin Carroll, Joan Edelstein Prosthetics and Patient Management: A Comprehensive Clinical Approach, Slack Incorporated; 1st edition, 2006.*
9. *Jill Black Lattanzi, Larry D. Purnell. Developing Cultural Competence in Physical Therapy Practice, F. A. Davis Company; 1 edition, 2005.*
10. *Λαμπίρης ΗΕ. Ορθοπαιδική και Τραυματιολογία. Ιατρικές Εκδόσεις Πασχαλίδη, Αθήνα, 2003.*
11. *Dianne V. Jewell. Guide to Evidence-Based Physical Therapy Practice, Jones and Bartlett Publishers, Inc. 1 edition, 2007.*
12. *Albert W. Taylor, Michel J. Johnson. Physiology of Exercise and Healthy Aging, Human Kinetics; 1 edition, 2007.*
13. *John A. Kanis. Textbook of osteoporosis, Oxford: Blackwell Science, 1996.*

## 4.1.2 THERAPEUTIC EXERCISE IN SPECIAL POPULATIONS

SCHOOL	SCHOOL OF HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	PHYS_35	SEMESTER	7 <sup>th</sup>
COURSE TITLE	THERAPEUTIC EXERCISE IN SPECIAL POPULATIONS		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
LECTURES		3	5
LABORATORY PRACTICE		1	
COURSE TYPE	SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<i>Upon successful completion of the course, the student will be able to design therapeutic exercise programs for each special population group with the aim of individually improving the functionality and quality of life of the patient.</i>
<b>General Competences</b>
<ul style="list-style-type: none"> <li>• Critical thinking.</li> <li>• Finding and processing information.</li> <li>• Decision making.</li> <li>• Promoting free, creative and inductive thinking.</li> <li>• Production of new research ideas.</li> </ul>

## SYLLABUS

<b>A. Contents of the theoretical part of the course.</b>
<b>Section 1. Basic principles of evaluation and prescribing therapeutic exercise in special populations</b>
- <i>Identification of therapeutic exercise and groups of special populations.</i>

- *Benefits of therapeutic exercise.*
- *Groups of patients who are part of the therapeutic exercise.*
- *Interdisciplinary rehabilitation team.*
- *Safety and effectiveness of therapeutic exercise.*
- *Measures for the implementation of therapeutic exercise safely.*

## **Section 2. Therapeutic exercise in gynecology**

- *Therapeutic exercise in patients with pelvic floor insufficiency: Pathophysiology, benefits of exercise, evaluation, prescribing individualized exercise programs individually or in groups.*
- *Therapeutic exercise after lymph node dissection or mastectomy: Pathophysiology, benefits of therapeutic exercise, evaluation, prescribing individualized exercise programs individually or in groups.*
- *Therapeutic exercise and lymphedema.*

## **Section 3. Therapeutic exercise in obstetrics**

- *Musculoskeletal adaptations of the pelvic floor during pregnancy.*
- *Evaluation of pelvic floor muscles.*
- *Evaluation of physical activity, peculiarities of women in pregnancy.*
- *Prescribing and applying therapeutic pelvic floor muscle therapy for the treatment of pelvic pain.*
- *Prescription and application of therapeutic pelvic floor muscle therapy in pubic adhesion problems.*
- *Prescription and application of therapeutic exercise of pelvic floor muscles in urinary incontinence.*
- *Prescription and application of therapeutic exercise of pelvic floor muscles in rectus abdominis dilation.*
- *Therapeutic exercise using Kegel exercises, Clinical Pilates, biofeedback therapy.*
- *Exercise prescribing individual and group therapeutic exercise programs.*

## **Section 4. Therapeutic exercise in amputations**

- *Multifactorial rehabilitation team in a patient with amputation.*
- *Surgery for amputation.*
- *Treatment of pain, dermatological dysfunctions, psychological effects in a patient with a stump.*
- *Rehabilitation of patients with lower extremity stump.*
- *Rehabilitation of patients with upper limb stump.*
- *Special issues concerning the child with stump, athletes with stump, new technologies and types of intentions.*

## **Section 5. Therapeutic exercise for burns**

- *Pathophysiology of burn.*
- *The role of therapeutic exercise in the recovery of burns.*
- *Physiotherapeutic evaluation of burn victim. Scales for measuring the effects of burn on functionality and quality of life of a burn victim.*
- *Therapeutic exercise after the burn and after the burn burn surgery.*
- *Effects of aerobic exercise on aerobic capacity and balance.*
- *Use of appropriate natural means for the recovery of burns.*
- *Special application splints.*

## **Section 6. Therapeutic exercise in metabolic bone diseases**

- *Pathophysiology, Benefits of therapeutic exercise in metabolic bone diseases.*
- *Evaluation of patients with metabolic bone diseases, peculiarities, categorization and physiotherapy goals. Physiotherapeutic means used by category of diseases. Indications / contraindications of electrophysical means.*
- *Therapeutic exercise and osteoporosis: Prescription / application protocols.*
- *Therapeutic exercise and Paget's disease: Prescription / application protocols.*
- *Therapeutic exercise and Osteomalacia: Prescription / application protocols.*
- *Therapeutic exercise and Hyperparathyroidism / endocrine diseases Prescribing / application protocols.*

## **Section 7. Therapeutic exercise in pediatrics I.**

- *Peculiarities of pediatric patients: differences in physiology, pathophysiology.*
- *Peculiarities of evaluation.*
- *Variations in the means of restoration (how to be the space, what are the means, what are the natural means - contraindications).*
- *Differentiations in muscle strengthening, regaining neuromuscular control, balance.*
- *The role of the interdisciplinary approach in pediatric physiotherapy.*

## **Section 8. Therapeutic exercise in pediatrics II**

- *Therapeutic exercise in Scoliosis-kyphosis-lordosis.*
- *Therapeutic exercise on a split back.*
- *Therapeutic exercise in muscular dystrophies.*
- *Therapeutic exercise in spinal cord injuries and craniocerebral injuries.*
- *Developmental disorders.*
- *Therapeutic exercise in juvenile diabetes.*
- *Therapeutic exercise in attention deficit disorder.*
- *Therapeutic exercise in children with juvenile rheumatoid arthritis.*
- *Therapeutic exercise in children with fractures.*

- *Therapeutic exercise and limb injuries (paralysis of the brachial plexus) / fractures / amputations.*
- *Evaluation and rehabilitation programs in patients with, Spinal dysfunction, orthopedic dysfunctions, sports injuries, cardio-respiratory diseases.*

### **Section 9. Therapeutic exercise in children and adolescents with cardiovascular and respiratory diseases**

- *Pathophysiology of congenital heart diseases.*
- *Child and adolescent characteristics in terms of motor control, gait and cardio-Respiratory.*
- *Peculiarities of child and adolescent in terms of the application of therapeutic exercise.*
- *Special issues concerning rehabilitation in children and adolescents (family environment treatment in an educational environment).*
- *Evaluation.*
- *Prescribing therapeutic exercise.*

### **Section 10. Therapeutic exercise in special education**

- *Role of therapeutic exercise in children with developmental problems.*
- *The role of proper assessment of children in the developmental phases.*
- *Categories of children with special needs.*
- *Prescribing individualized therapeutic exercise per category of disease-dysfunction.*
- *Prescribing therapeutic exercise in multiple disabilities.*
- *The role of group therapy in special education.*
- *Compliance and incentives to participate in a therapeutic exercise program.*

### **Section 11. Therapeutic exercise in water in special populations**

- *Principles of therapeutic exercise in water for adults and children.*
- *Properties of aquatic environment.*
- *Benefits / advantages of therapeutic exercise in water.*
- *Differentiation of exercise parameters in water.*
- *Prescribing therapeutic exercise and defining exercise parameters (intensity, frequency, duration) in water for different population groups (elderly, patients with cardiovascular diseases, patients with respiratory diseases, patients with musculoskeletal diseases, patients with neurological diseases), children with special diseases.*
- *Physiological responses and dangers to exercise in water.*
- *Safety of therapeutic exercise in water.*

### **Section 12. Therapeutic exercise in pets**

- *Anatomy of the musculoskeletal system and physiology of pets. Comparison with that of man.*
- *Pathology of the neuromuscular system of pets.*
- *Diagnosis, evaluation, definition of therapeutic goals.*
- *Principles of therapeutic exercise in pets.*
- *Benefits of therapeutic exercise and application in pets with musculoskeletal injuries (fractures, fractures, arthritis, sports injuries), after surgeries (spine, cruciate ligaments, arthroplasty / arthrodesis), neurological diseases (myopathy), arthritis.*
- *Design and implementation of therapeutic exercise with physiotherapy methods (special mobilization techniques, kinesiotherapy, electrotherapy, hydrotherapy).*
- *Ethics and physiotherapy in pets, special treatment areas and trained staff.*

### **Section 13. Therapeutic exercise in a special environment**

- *Therapeutic exercise in the work environment.*
- *Therapeutic exercise in educational places-school.*
- *Therapeutic exercise in psychiatric hospitals.*
- *Therapeutic exercise in nursing homes.*
- *The role of group therapeutic exercise.*
- *English terminology related to the subject of the course.*

### **Section 14. Final assessment of students**

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DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<p>The methods of teaching the theoretical part of the course include:</p> <ul style="list-style-type: none"> <li>Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>Class discussion and feedback.</li> <li>Work in small groups or individually.</li> <li>Student presentations.</li> <li>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</li> <li>Visiting speakers (after a decision of the sector).</li> </ul> <p>The laboratory part of the course is taught using the following methods and tools:</p> <ul style="list-style-type: none"> <li>Demonstration and application of the methods and techniques of the course by the teacher and application by pairs of students.</li> <li>Demonstration and application of laboratory equipment.</li> <li>Work in small groups.</li> </ul>	
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	Laboratory practice	13hours
	Study of bibliography	73 hours
	Course total (25 hours workload per credit unit)	125 hours (5 ECTS)
STUDENT PERFORMANCE EVALUATION	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>for the theoretical part of the course: A final written evaluation is carried out which includes questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</li> <li>for the laboratory part of the course: The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</li> </ul>	

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- Bates, A. & Hanson, N. Aquatic Exercise Therapy. Philadelphia: WB Saunders Company. 1996
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6. Jan Stephen Tecklin. *Pediatric Physical Therapy*, Lippincott Williams & Wilkins; 4th edition , 2007.
7. John A. Kanis. *Textbook of osteoporosis*, Oxford :Blackwell Science, 1996.
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## 4.1.3 REHABILITATION-REHABILITATION TEAM

SCHOOL	SCHOOL OF HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	PHYS_36	SEMESTER	7 <sup>th</sup>
COURSE TITLE	REHABILITATION-REHABILITATION TEAM		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
LECTURES		3	5
LABORATORY PRACTICE		1	
COURSE TYPE	SPECIALISED KNOWLEDGE-SKILLS DEVELOPMENT		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## Learning outcomes

<b>Learning outcomes</b>
<p>The student at the end of the course will be able to:</p> <ol style="list-style-type: none"> <li>1. list the structures that provide Rehabilitation services,</li> <li>2. recognize the roles and main interventions of the members of the Rehabilitation,</li> <li>3. recognize the potential needs of the patient and caregivers in Rehabilitation services as well as recognizes the occurrence of secondary health complications,</li> <li>4. collaborate effectively with the rest of the team on possible modification of the rehabilitation program and physiotherapy intervention within the overall interdisciplinary rehabilitation program in order to provide the best services to the team.</li> </ol>
<b>General Competences</b>

- *Critical thinking.*
- *Finding and processing information*
- *Decision making.*
- *Promoting free, creative and inductive thinking.*
- *Production of new research ideas.*

## SYLLABUS

### A. Contents of the theoretical part of the course.

#### Section 1. Rehabilitation - Rehabilitation Team

- *Definitions - The time course of the Restoration.*
- *The process of Rehabilitation.*
- *Measurements and evaluation of Rehabilitation needs.*
- *The members and the meeting of the Rehabilitation team.*
- *The cooperation of the members of the Rehabilitation team.*
- *Services provided by the Rehabilitation team.*
- *Description of roles, superimpositions.*
- *The medical specialties in Rehabilitation.*
- *Therapeutic specialties in Rehabilitation.*
- *Assistance technology.*
- *Barriers to the provision of Rehabilitation services.*
- *Examples.*

#### Section 2. Injury - Disability

- *Definitions*
- *The concept of diversity.*
- *Disability. The perception and understanding of disability.*
- *Disability perception systems in various areas of life.*
- *Diseases that cause a significant degree of disability depending on the systems.*
- *Disability and human rights.*

#### Section 3. The classification of functionality, disability.

- *Damage to the structure-restrictions on activities-restrictions on participation.*
- *Personal factors, environmental factors.*
- *Prevalence of Disability according to age, gender, income and diseases, demographics.*
- *The cost of Disability. Direct and indirect costs. The national statistical authority.*

#### Section 4. The concept of health in people with disabilities.

- *The initial state of health.*
- *Secondary conditions.*
- *Comorbidities.*
- *General health needs.*
- *Special health needs.*
- *Examples.*

#### Section 5. Provision of rehabilitation services.

- *Human resources.*
- *Development of mechanisms to improve the provision of Rehabilitation services.*
- *Specialisation.*
- *Continuing education.*
- *Structures that provide restoration.*
- *Development of rehabilitation technology.*
- *Tele-restoration.*
- *Information and updated consent.*

#### Section 6. The impact of the environment on users of recovery services.

- *Definitions. The impact of the environment.*
- *Design.*
- *The interventions of the members of the Rehabilitation team.*
- *Access to information.*
- *Developing national policies to remove environmental barriers.*

#### Section 7. People with disabilities, carers and the family.

- *The needs of caregivers - measuring tools - support methods.*
- *Care training.*
- *Improving the quality of services provided.*

#### Section 8. People with disabilities and work.

- The peculiarities of people with disabilities in the work environment.
- The role of the Rehabilitation team in the return of the disabled person to work.

### **Section 9. The role of rehabilitation in medical systems - Recommendations.**

- The need to develop Rehabilitation within medical systems.
- The application of Rehabilitation in medical systems.
- Primary-Secondary-Tertiary health care - the role and existence of the team - the role of the interdisciplinary team.

### **Section 10. Recovery in emergencies and mass disasters.**

- *The need for members of Rehabilitation to participate in emergency teams.*
- *Ways and Types of intervention.*
- *The path of intervention by team members.*
- *The intervention depending on the type of damage.*
- *Rehabilitation and recovery team in mass disasters.*
- *Minimum group composition - interventions.*

### **Section 11. Child with disability.**

- *Treatment - Education - Exercise - Social Exclusion - The role of the community.*
- *Rehabilitation and Rehabilitation team in children.*

### **Section 12. Rehabilitation in the patient with CNS damage.**

- *Rehabilitation in the patient with spinal cord injury.*
- *The damage of NM and its complications. The goals of Rehabilitation - the expectation - the interdisciplinary Rehabilitation team.*
- *Rehabilitation in the patient with spinal injury or traumatic brain injury.*
- *The damage, the comorbidities and the complications. The Objectives of Rehabilitation The Interdisciplinary Rehabilitation Team.*

### **Section 13. Rehabilitation in the patient with amputation.**

- *Treatment.*
- *Education.*
- *Additions.*
- *The rehabilitation program.*
- *The interdisciplinary Rehabilitation team.*
- *English terminology related to the subject of the course.*

### **Section 14. Final assessment of students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the clinical practice of the course.**

### **Section 1. Rehabilitation - Rehabilitation Team**

- *Definitions - The time course of the Restoration.*
- *The process of rehabilitation.*
- *Measurements and evaluation of Rehabilitation needs.*
- *The members and the meeting of the Rehabilitation team.*
- *The cooperation of the members of the Rehabilitation team.*
- *Services provided by the Rehabilitation team.*
- *Description of roles, superimpositions.*
- *The medical specialties in rehabilitation.*
- *Therapeutic specialties in rehabilitation.*
- *Assistance technology.*
- *Barriers to the provision of Rehabilitation services.*
- *Examples.*

### **Section 2. Injury - Disability.**

- *Definitions*
- *The concept of diversity.*
- *Disability. The perception and understanding of disability.*
- *Disability perception systems in various areas of life.*
- *Diseases that cause a significant degree of disability depending on the systems.*
- *Disability and human rights.*

### **Section 3. The classification of functionality, disability.**

- *Damage to the structure-restrictions on activities-restrictions on participation.*
- *Personal factors, environmental factors.*

- *Prevalence of Disability by age, gender, income and illness, demographic data.*
- *The cost of Disability. Direct and indirect costs. The national statistical authority.*

#### **Section 4. The concept of health in people with disabilities.**

- *The initial state of health.*
- *Secondary conditions.*
- *Comorbidities.*
- *General health needs.*
- *Special health needs.*
- *Examples.*

#### **Section 5. Provision of rehabilitation services.**

- *Human resources.*
- *Development of mechanisms to improve the provision of Rehabilitation services.*
- *Specialisation.*
- *Continuing education.*
- *Structures that provide Restoration.*
- *Development of Rehabilitation technology.*
- *Tele-restoration.*
- *Information and updated consent.*

#### **Section 6. The impact of the environment on users of Recovery services.**

- *Definitions. The impact of the environment.*
- *Design.*
- *The interventions of the members of the Rehabilitation team.*
- *Access to information.*
- *Developing national policies to remove environmental barriers.*

#### **Section 7. People with disabilities, carers and the family.**

- *The needs of caregivers - measuring tools - support methods.*
- *Care training.*
- *Improving the quality of services provided.*

#### **Section 8. People with disabilities and work.**

- *The peculiarities of people with disabilities in the work environment.*
- *The role of the Rehabilitation team in the return of the disabled person to work.*

#### **Section 9. The role of rehabilitation in medical systems - Recommendations.**

- *The need to develop Rehabilitation within medical systems.*
- *The application of Rehabilitation in medical systems.*
- *Primary-Secondary-Tertiary health care - the role and existence of the team - the role of the interdisciplinary team.*

#### **Section 10. Recovery in emergencies and mass disasters.**

- *The need for members of Rehabilitation to participate in emergency teams.*
- *Ways and Types of intervention.*
- *The path of intervention by team members.*
- *The intervention depending on the type of damage.*
- *Rehabilitation and recovery team in mass disasters.*
- *Minimum group composition - interventions.*

#### **Section 11. Child with disability.**

- *Treatment - Education - Exercise - Social Exclusion - The role of the community.*
- *Rehabilitation and Rehabilitation team in children.*

#### **Section 12. Rehabilitation in the patient with CNS damage.**

- *Rehabilitation in the patient with spinal cord injury.*
- *The damage of NM and its complications. The goals of Rehabilitation - the expectation - the interdisciplinary Rehabilitation team.*
- *Rehabilitation in the patient with spinal injury or traumatic brain injury.*
- *The damage, the comorbidities and the complications. The Objectives of Rehabilitation The Interdisciplinary Rehabilitation Team.*

#### **Section 13. Rehabilitation in the patient with amputation.**

- *Treatment.*
- *Education.*
- *Additions.*
- *The rehabilitation program.*
- *The interdisciplinary rehabilitation team.*

**Section 14. Final assessment of students.**

- *The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below*

**TEACHING and LEARNING METHODS – EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	<p>Many teaching techniques and tools are included including:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</li> <li>• Discussion in the classroom and feedback</li> <li>• Work in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, online discussion through asynchronous education platform and e-mail)</li> <li>• Visiting speakers after approval of the Department</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	39 hours
	Laboratory practice	13hours
	Study of bibliography	73hours
	Course total (25 hours workload per credit unit)	125 hours (5 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course: A final written evaluation is carried out which includes development questions and / or multiple choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</li> <li>• for the laboratory part of the course: The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</li> </ul>	

**ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

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## 4.1.4 CLINICAL PAEDIATRIC PHYSIOTHERAPY

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	7TH
COURSE TITLE	CLINICAL PAEDIATRIC PHYSIOTHERAPY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		2	7
CLINICAL PRACTICE		5	
COURSE TYPE	SPECIALTY		
PREREQUISITE COURSES	PAEDIATRIC NEUROLOGIC PHYSIOTHERAPY		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

Learning outcomes

*The student at the end of the course will be able to:*

1. list the main diseases after CNS & PNS lesions of infants / children and the aesthetic-motor disorders of these diseases
2. describe the main problems in musculoskeletal diseases e.g. juvenile rheumatoid arthritis
3. evaluate the aesthetic, motor and functional deficits after CNS & PNS damage or after musculoskeletal damage in infants and children
4. evaluate the neurokinetic development and evolution of newborns-infants & children
5. select and apply valid and reliable means of evaluation of newborns-infants & children with CNS & PNS lesions or with a disease in the musculoskeletal system
6. apply the most basic approaches of pediatric therapeutic intervention
7. sets realistic therapeutic goals for children with mobility problems due to damage to the nervous system or musculoskeletal system
8. apply exercises of the most basic approaches used in infants
9. implement an appropriate treatment plan safely
10. apply a unique and individualized therapeutic approach for each child.

### **General competencies**

- Search, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Work in an interdisciplinary environment
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

### **SYLLABUS**

#### **A. Contents of the theoretical part of the course**

##### **Section 1. Brain development. Interdisciplinary approach**

- Brain development in embryonic life,
- Factors that affect the normal development of the brain,
- Typical and non-typical neuromotor development of a newborn, infant, child,
- Interdisciplinary approach to different neurological conditions and conditions.
- Therapeutic plan design

##### **Section 2. Evaluation of neurological disorders - deficits. Systematic approach**

- Evaluation of gross mobility,

- Evaluation of motion quality,

- Functionality evaluation,

- Evaluation of posture-deformations

### **Section 3. High-risk newborns and infants**

-causes of cerebral palsy

-general kinetic-functional deficits of the cerebral palsy

-clinical characteristics and therapeutic targets for hemiplegia, diplegia, quadriplegia, ataxia, athetosis

### **Section 4. High-risk newborns and infants**

- obstetric paralysis,

- spina bifida,

- muscular dystrophy,

- Down syndrome.

### **Section 5. High-risk newborns and infants**

-neuromuscular scoliosis,

-muscular torticollis

-juvenile rheumatoid arthritis

### **Section 6. Evidence-based physiotherapeutic approaches in newborns/infants/children**

-NDT/Bobath approach

### **Section 7. Evidence-based physiotherapeutic approaches in newborns/infants/children**

-Sensory integration approach

### **Section 8. Evidence-based physiotherapeutic approaches in newborns/infants/children**

-Constrained-induced approach

### **Section 9. Evidence-based physiotherapeutic approaches in newborns/infants/children**

-Cuevas MEDEK Exercises approach

### **Section 10. Evidence-based physiotherapeutic approaches in newborns/infants/children**

-Dynamic Movent Intervention approach

### **Section 11. Causes and consequences of hip dislocation, treatment of musculoskeletal deformities**

-Fixation

-Stands

-Splints of upper and lower extremities



## Section 12. Study of spasticity and interventions

- Surgical procedures
- Shortening / deformities mainly due to cerebral palsy.

## Section 13. The effect of sensory organs on movement.

- Aesthetic-motor and functional deficits
- English terminology related to the subject of the course.

## Section 14. Final assessment

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course as mentioned below.

## B. Contents of the clinical practice of the course

- Application-observation of normal motor development 1st-12th month, posture control reactions (orientation reactions-balancing, protective limbs reactions).
- Application of gross mobility assessment tool- Gross motor function measure.
- Evaluation for muscle tone, quality of movement of children.
- Study of kinetic image of a child with hemiplegic, diplegic, quadriplegic, athetotic and ataxic cerebral palsy, with obstetric paralysis, spina bifida and / or hydrocephalus, muscular dystrophy.
- Implementation of appropriate exercises based mainly on the Bobath (Neurodevelopmental therapy) approach.
- Exercises based on the Motor learning approach are also applied.
- Finally, a study of the kinetic image of a child with a muscular torticollis, a child with neuromuscular scoliosis and a child with juvenile rheumatoid arthritis is performed as well as the application of appropriate exercises.

## TEACHING AND LEARNING METHODS-EVALUATION

<b>DELIVERY</b>	<p><b>FACE TO FACE</b></p> <p><i>The clinical practice is conducted in special locations, under the guidance of specialized and experienced clinical physiotherapists and with the use of laboratory and clinical equipment.</i></p>
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<p><i>Theoretical part:</i></p> <p><i>Many teaching techniques and tools are included, including:</i></p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</li> <li>• Discussion in the classroom and feedback</li> <li>• Work in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</li> <li>• Visiting speakers after the approval of the Department</li> </ul> <p><i>Clinical exercise:</i></p> <p><i>The clinical practice of the course is conducted in the hospital with the guidance by specialized and experienced clinical physiotherapists and with the use of nursing, laboratory and clinical equipment:</i></p> <ul style="list-style-type: none"> <li>• Demonstration and application of methods and techniques applied in the rehabilitation of the patient in the hospital</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Demonstration and application of the laboratory equipment of the physiotherapy department of the hospital</i></li> <li>• <i>Clinical practice of students in small groups</i></li> <li>• <i>Presentations of clinical cases by students</i></li> <li>• <i>Analysis - presentation of clinical cases</i></li> <li>• <i>Clinical application</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	26 hours
	Clinical Practice	65 hours
	Study of bibliography	84 hours
	Course total (25 hours workload per credit unit)	175 hours (7 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p>A final written evaluation is carried out which includes essay questions and / or multiple-choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• <i>for the clinical part of the course:</i></li> </ul> <p>oral examinations, assignment, presentation and application of the physiotherapy intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of the evaluation sheets of the patients by the students. In each course, the students' participation and their ability to respond adequately to the treatment of the clinical case that is being addressed are evaluated by the teachers. Successful or not, the intervention used, under the guidance of the teacher, is evaluated. Specifically, the examination is based on the ability to approach the patient, receiving a history, the order of evaluation, his ability to set short-term and long-term therapeutic goals and the application of appropriate physiotherapy techniques. The student must have successfully completed the set of specific physiotherapy interventions that cover all physiotherapy techniques in each clinic that is employed. The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and are equally calculated by the grade he collects in each clinical placement he performs. The weight of the final examinations in the clinical part corresponds to 30% of the final score (weight coefficient 0.3).</p>	

ATTACHED BIBLIOGRAPHY

1. *Palisano R., Orlin M., Schreiber J. (2021) Campbell's Φυσικοθεραπεια Για Παιδια, Broken-Hill Publisher, Λευκωσία*
2. *Bly L. Components of Typical and Atypical Motor Development, 1<sup>st</sup> edition, NDTA, 2011*
3. *Bly L, Baby Treatment Based on NDT Principles, 1<sup>st</sup> edition, Communication Skill Builders, 1999*
4. *Kessler M. Φυσικοθεραπευτικές Παρεμβάσεις σε Ασθενείς με Νευρολογικές Παθήσεις.(2015) Εκδόσεις Κωνσταντάρας*
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9. *Freeman Miller (2007) Physical Therapy Of Cerebral Palsy, Springer (Ηλεκτρονικό Βιβλίο)*

## 4.1.5 SPORTS PHYSIOTHERAPY

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	7TH
COURSE TITLE	SPORTS PHYSIOTHERAPY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	5
LABORATORY		2	
COURSE TYPE	SPECIALTY		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><i>The student will be able after the end of the course to:</i></p> <ol style="list-style-type: none"> <li><i>1. interpret the role of the Physiotherapist in the multifactorial Medical Sports Team and to function effectively in it in accordance with international rules and tactics,</i></li> <li><i>2. distinguish the particularities of the injured athlete in terms of physiotherapy evaluation and rehabilitation,</i></li> <li><i>3. plan the appropriate rehabilitation program at all stages of healing of the most common immediate sports injuries, overuse syndromes and dysfunctional syndromes, seeking the fastest, most effective and safest return to the sport,</i></li> </ol>

4. select the appropriate evaluation interventions of the injured athlete in the field with precision,
5. promote fair play and drug control (Doping) practices as well as sports organization-entrepreneurship;
6. apply in practice special techniques and means of assessment of injuries, overuse syndromes and dysfunction syndromes in athletes, with confidence.

### General competencies

- Critical Thinking
- Finding and processing information
- Decision making
- Promoting free, creative and inductive thinking
- Production of new research ideas

### SYLLABUS

#### A. Contents of the theoretical part of the course

##### Section 1. Introduction to the course of Sports Physiotherapy

- The multifactorial Medical Sports Team and the role of the Sports Physiotherapist.
- The Athletic Physiotherapist in the world and in Greece (IFSP, WCPT).
- Elements of biomechanics of Olympic sports, peculiarities of structure-organization of sports, elements of sports classification (aerobic-anaerobic), elements of training-correlation of sports injuries-injuries.
- Epidemiology of injuries per Olympic sport.
- Overuse syndromes, immediate injuries, motor control dysfunction syndromes.

##### Section 2. Evaluation of athletes with pathology

- Systematic differential evaluation process - recording of findings - achievement of rehabilitation goals (YASO), clinical reasoning.
- Types and differences of athlete evaluation: before the season, on the field, before and during the rehabilitation, before returning to the sport.
- New technologies in the evaluation of athletes (3D motion analysis, isokinesis, diagnostic ultrasound, pelmatography analysis, balance platform, elastography, etc.).
- Syndromes of dysfunction of the pelvis, lower extremity, shoulder girdle.
- Discussion of clinical scenarios - problem based learning

##### Section 3. Design of a Rehabilitation Program for athletes with pathology

- The athlete as a patient: differentiations of systems

- *Pathophysiology of Sports Injury (biological materials, healing process, clinical reasoning for the use of rehabilitation tools)*
- *Rehabilitation program parameters (type of exercise, motor control, maintenance training - improvement of cardiorespiratory endurance, psychological parameters of the Athlete's rehabilitation).*
- *Progressive rehabilitation program based on load management of biological materials, surgical rehabilitation techniques*
- *Clinical reasoning - rational and scientifically based (evidence based) use of rehabilitation tools.*

#### **Section 4. Special techniques in the rehabilitation of athletes with pathology**

- *Means to reduce the inflammatory process (cryotherapy, analgesics, epidural treatment).*
- *Medication*
- *Means of immobilization (Binding - Use of guardians)*
- *Special rehabilitation techniques (Pathodynamics, Myoperitoneal pain, Muscle energy technique, fascia manipulation technique, Alexander technique, Pilates technique).*
- *Special techniques of neuromuscular rehabilitation (Kinetic control, PNF, Mental exercise -imaginary- mind therapy, vibration).*
- *Special means of rehabilitation (Movement, Feedback, Electrical Muscle Irritation, Balance Platform, diagnostic ultrasound, etc.).*

#### **Section 5. Restoration of muscle performance and movement trajectory in athletes**

- *Discussion of clinical scenarios - learning based on problem solving (problem-based learning) to justify reduced trajectory in athletes.*
- *Designing a program to regain movement trajectory (selection of stretches, special mobilization techniques, myoperitoneal release, etc.) in athletes.*
- *Discussion of clinical scenarios - learning based on problem solving (problem-based learning) to justify reduced muscle performance in athletes.*
- *Designing a program to regain muscle performance in athletes.*
- *Functional restoration of muscle performance and movement trajectory in athletes based on individual needs per sport.*

#### **Section 6. Rehabilitation of neuromuscular control in athletes**

- *Discussion of clinical scenarios - learning based on problem solving (problem-based learning) to justify dysfunction of neuromuscular control after injury to athletes.*
- *Neuroplasticity in musculoskeletal injuries, mechanisms.*
- *Kinetic learning parameters for regaining neuromuscular control in athletes (visual-motor coordination, focus of attention, motor control systems, periodicity and randomization).*
- *Designing a program to regain neuromuscular control in athletes.*
- *Functional rehabilitation of athletes based on individual needs per sport.*

#### **Section 7. Functional rehabilitation in athletes - return to sports activity**

- Assessment of athlete's functional progress after injury.

- Design - parameters of functional restoration on the field.

- Discussion of clinical scenarios - learning based on problem solving (problem-based learning) for functional rehabilitation in the field (upper limb injury, lower limb injury).

### **Section 8. Sports Physiotherapist and team**

- The multifactorial Medical Sports team, the role of the Sports Physiotherapist in the team, traveling with the team.

- Providing first aid on the field (Planning to provide first aid on the field, first aid for specific injuries, emergencies).

- Promotion of fair play and drug control (Doping).

- Sports organization-entrepreneurship, organization of sports events.

### **Section 9. Rehabilitation of athletes with pathology of the lower extremity I.**

- Common sports injuries and syndromes of knee and hip overuse in athletes

-Surgical procedures.

-Principles of rehabilitation - conservative / postoperative.

-Discussion of clinical scenarios - learning based on problem solving (problem-based learning) for designing rehabilitation programs.

### **Section 10. Rehabilitation of athletes with lower extremity pathology II**

-Common sports injuries and syndromes of overuse of the tibia, ankle and foot in athletes.

-Surgical procedures.

-Principles of rehabilitation - conservative / postoperative.

-Discussion of clinical scenarios - learning based on problem solving (problem-based learning) for designing rehabilitation programs.

### **Section 11. Rehabilitation of athletes with upper limb pathology**

-Common sports injuries and upper extremity overuse syndromes in athletes

-Surgical procedures

-Principles of rehabilitation - conservative / postoperative

-Discussion of clinical scenarios - learning based on problem solving (problem-based learning) for designing rehabilitation programs.

### **Section 12. Rehabilitation of athletes with spine pathology**

-Common sports injuries and spine overuse syndromes in athletes.

-Surgical procedures.

*-Principles of rehabilitation - conservative / postoperative.*

*-Discussion of clinical scenarios - learning based on problem solving (problem-based learning) for designing rehabilitation programs.*

### **Section 13. Special Topics in Sports Physiotherapy**

*-Prohibited substances - Doping (categories, mechanisms of action, ethical dilemmas, effects, control process).*

*-Injury and psychological effects on the athlete.*

*-Maintaining cardiorespiratory capacity in the injured athlete during the recovery period.*

*-Athletes with special needs (young athlete, elderly athlete, female athlete, athlete with chronic disease).*

*-English terminology related to the subject of the course.*

### **Section 14. Final Assessment**

*- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the laboratory part of the course:**

### **Section 1. Olympic Sports / injury study**

*- Video projection of the most famous Olympic Sports: separation of direct injuries-overuse syndromes based on biomechanical sport, differentiation of goals and tools for recovery of direct injuries-overuse syndromes.*

*- Discussion of clinical scenarios - learning based on problem solving (problem-based learning) in working groups.*

### **Section 2. Evaluation of an athlete with pathology**

*- Systematic differential evaluation process - recording findings - achieving rehabilitation goals - practical application in working groups.*

*- Evaluation of motor control: Syndromes of dysfunction of motor control of SS, hip, shoulder girdle - Practical application of clinical skills in working groups.*

### **Section 3. Sports bandage - Guardians**

*-Practical application of clinical skills in working groups: bandaging techniques (fixed bandaging, functional ligation).*

*- Demonstration of application and operation of guardians.*

### **Section 4. Assessment tools - rehabilitation of muscle performance and trajectory in athletes**



- Discussion of clinical scenarios - problem based learning (problem-based learning) for evaluation - restoration of muscle performance and trajectory (stretching - special mobilization techniques, resistance training techniques, closed and open biokinetic chain, isokinosis, feedback - Electrical Muscular control).

-Practical application of clinical skills in working groups.

### **Section 5. Assessment-rehabilitation tools for neuromuscular control in athletes**

- Discussion of clinical scenarios - learning based on problem solving (problem based learning) for evaluation - restoration of neuromuscular control (repositioning, CCA exercises with shear stresses, stretching-shortening cycle exercises, reaction to joint disorder, pleiometric training, exercise training) , progressive participation in the sport).

-Practical application of clinical skills in working groups.

### **Section 6. Functional evaluation tools - functional rehabilitation in athletes / return to sports activity**

-Practical application of evaluation tests - functional progress tests (one-legged jumps for time, one-legged jumps for distance, etc.)

-Practical application of functional rehabilitation tools (running, jumping, plyometric training, mimetic sport activities, dynamic sport activities, gradual participation in the sport).

-Practical application of clinical skills in working groups.

### **Section 7. First aid on the field**

- Evaluation of event scene-clinical scenario in the field.

- Control of vital signs in an injured athlete-practical application in a model.

-Support techniques for life preservation (airway obstruction, respiratory arrest, cardiac arrest) - practical application in a model.

- Putting a splint for immobilization - practical application.

- Discussion of clinical scenarios - learning based on problem solving (problem-based learning) in working groups.

### **Section 8. Evaluation / Rehabilitation programs for lower extremity I injuries in athletes**

-Practical application of clinical skills in working groups: assessment tests in injuries / syndromes of the lower extremity (hip, knee) in athletes.

-Practical application of clinical skills in working groups: rehabilitation techniques for injuries / syndromes of the lower extremity (hip, knee) in athletes.

### **Section 9. Evaluation / Rehabilitation programs for lower extremity II injuries in athletes**

-Practical application of clinical skills in working groups: assessment tests in injuries / syndromes of the lower extremity (tibia, ankle, foot) in athletes.

-Practical application of clinical skills in working groups: rehabilitation techniques for injuries / syndromes of the lower extremity (tibia, ankle, foot) in athletes.

### **Section 10. Evaluation / Rehabilitation programs for upper extremity I injuries in athletes**

*-Practical application of clinical skills in working groups: assessment tests in injuries / syndromes of the upper extremity (shoulder girdle) in athletes.*

*-Practical application of clinical skills in working groups: rehabilitation techniques for injuries / syndromes of the upper extremity (shoulder girdle) in athletes.*

### **Section 11. Evaluation / Rehabilitation programs for upper extremity II injuries in athletes**

*-Practical application of clinical skills in working groups: assessment tests in injuries / syndromes of the upper extremity (elbow, hand) in athletes.*

*-Practical application of clinical skills in working groups: rehabilitation techniques for injuries / syndromes of the upper extremity (elbow, hand) in athletes.*

### **Section 12. Evaluation / Rehabilitation programs for spine injuries in athletes**

*-Practical application of clinical skills in working groups: assessment tests in injuries / syndromes of the spine in athletes.*

*-Practical application of clinical skills in working groups: rehabilitation techniques for injuries / syndromes of the spine in athletes.*

### **Section 13. Prevention of pathology in athletes - restoration of motor control**

*-Practical application of clinical skills in working groups: tests for the evaluation of motor control syndromes in athletes.*

*-Practical application of clinical skills in working groups: techniques for the rehabilitation of motor control syndromes in athletes.*

### **Section 14. Final Assessment**

*- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING AND LEARNING METHODS-EVALUATION**

DELIVERY	FACE TO FACE
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<p><i>The teaching methods of the course include:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures - presentations using a blackboard, transparencies, fixed projection system (overhead projector), video (DVD) and television.</i></li> <li>• <i>Class discussion and feedback.</i></li> <li>• <i>Individual or group work of students and presentations (optional).</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</i></li> <li>• <i>Invitation of speakers (after approval of the Department).</i></li> </ul>

TEACHING METHODS	Activity	Semester Workload
	Lectures	39 hours
	Laboratory	26 hours
	Study of bibliography	60 hours
	Course total (25 hours workload per credit unit)	125 hours (5 ECTS)
STUDENT PERFORMANCE EVALUATION	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>A final written evaluation is carried out which includes development questions and / or multiple-choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

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## 4.2 8<sup>th</sup> SEMESTER

### 4.2.1 ERGONOMICS, PROSTHETICS, ORTHOTICS, AIDS

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	8TH
COURSE TITLE	ERGONOMICS, PROSTHETICS, ORTHOTICS, AIDS		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		4	5
COURSE TYPE	SPECIAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

### LEARNING OUTCOMES

#### Learning outcomes

The student will be able after the end of the course to:

1. compare the operating conditions of the person during his work, his daily activity but also of entertainment and rest,

2. present ways of intervention in order to reduce the chances of creating physical and psychological syndromes and stress as well as injuries,
3. prescribe treatment regimens for the prevention of specific musculoskeletal and other problems at work, daily activity and leisure with confidence,
4. evaluate a stump, socket and prosthesis,
5. interpret gait with a prosthetic mechanism, avoiding complications from its use,
6. distinguish the appropriate orthotic mechanism for each condition in combination with the specifics of the patient,
7. accurately distinguish orthotic mechanisms and evaluate their effectiveness.

### General competencies

- Search, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations.
- Production of new research ideas.
- Promoting free, creative and inductive thinking.

### SYLLABUS

#### Section 1. Introduction to the Basic Principles of Ergonomics. Anthropometry. Workplace

-Chronology. Definition. Structure of science. Physical, cognitive and organizational ergonomics. Its relationship with other humanities specialties and the interaction with them. Aims and objectives of ergonomics.

-Definition and purpose of anthropometry. Anthropometry and Ergonomics.

-Methods for feeding anthropometric data and their appropriate use (anthropometric tables, anthropometric data recording maps, etc.)

-Description of the workplace and the parameters that interact within it.

#### Section 2. Occupational Risk and Workplace Safety

-Occupational risk factors related to physical characteristics: posture, repetition, rest time, vibrations, handling of materials. Methods for identifying risk factors and practicing their application.

-Occupational risk factors related to environmental characteristics: extreme temperatures, lighting, noise, physical vibration, electricity, radiation, biological substances.

-Occupational risk factors related to cognitive and organizational characteristics: job stability, work organization, work volume, workload, work stress, decision making, relationship of perception, memory and reasoning with motor response, communication, employment schedule, human resource management.

-Legislation, institutions, structures and marking related to workplace safety.

#### Section 3. Preventive Occupational Physiotherapy I. Standing Workplace and Cargo Transportation

-Activities that require an upright job. Prolonged standing. Performing activities above the head. Possible problems and their causes. Physiotherapy intervention. Hints and tips. European directives.

-Lifting, transporting and moving loads. Possible problems and stress. Physiotherapy intervention. Hints and tips. Back School. European directives

**Section 4. Preventive Occupational Physiotherapy II. Sitting Position**

*-Activities that require a sedentary job. Office work and everyday life at school. The use of a computer. Possible problems and stress. Physiotherapy intervention. Hints and tips. Neck School. European directives*

**Section 5. Preventive Occupational Physiotherapy III. Overuse Syndromes**

*-Factors and conditions that cause overuse syndromes during work and daily activities. The use of tools at work and daily activities. Physiotherapy intervention. Hints and tips. European directives.*

**Section 6. Upper Limb Amputations**

*-Causes of upper limb amputations and epidemiological features. Categorization according to the level of amputation.*

*-Stump characteristics depending on the level of amputation. Stages of stump healing, and physiotherapy intervention.*

*-Complications and their management.*

**Section 7. Upper Limb Prosthetics**

*-Types and technologies of prostheses depending on the level of amputation and the special needs of the stump.*

*-Options for additives for work and everyday life. Patient education in their application and use.*

**Section 8. Lower Limb Amputations**

*-Causes of lower limb amputations and epidemiological features. Categorization according to the level of amputation.*

*-Stump characteristics depending on the level of amputation. Stages of stump healing, and physiotherapy intervention.*

*-Complications and their management.*

**Section 9. Lower Limb Prosthetics**

*-Materials and technology of sockets. Application, complications of the stump due to loading and their management.*

*-Types and technologies of prostheses depending on the level of amputation and the special needs of the stump.*

**Section 10. Walking and Sports in Lower Limb Amputation**

*-Characteristics and peculiarities of walking with a prosthetic mechanism. Technologies of "smart" prosthetic mechanisms. Patient education in their application and use. Optimization of gait and prevention of complications and injuries.*

*-Adaptation of the patient and the prosthetic mechanism to sports activities. Patient education in their application and use. Optimization of performance and prevention of complications and injuries.*

### Section 11. Principles of Orthotics and Orthotics

-Biomechanical principles of orthotic science and technology. Static and functional orthotic mechanisms, indications, contraindications and complications of their use. Materials and technology of orthotics.

### Section 12. Upper Limb and Spine Orthotics

-Technology, materials and peculiarities of the orthotics of the upper limb and the spine. Static, functional, postoperative, and splint fractures of the upper limb and spine. Criteria for selecting the appropriate orthotics depending on the pathology and the special needs of the patient. Complications and their management. Patient education in their application and use, in daily life and work.

### Section 13. Lower extremity orthotics, soles and pelmatogram

-Technology, materials and peculiarities of the lower limb orthotics. Static, functional, postoperative, and lower limb fracture splints. Criteria for selecting the appropriate orthotics depending on the pathology and the special needs of the patient. Complications and their management. Patient education in their application and use, in daily life and work.

-Technology, materials and peculiarities of orthotics. Criteria for selecting the appropriate orthotics depending on the pathology and the special needs of the patient. Pelmatography technology and the use of clinical examination in the creation of custom orthotics, advantages and disadvantages of their use. Complications and their management.

-English terminology related to the subject of the course.

### Section 14. Final Assessment

-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

## TEACHING AND LEARNING METHODS-EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<p>Many teaching techniques and tools are included, including:</p> <ul style="list-style-type: none"> <li>• Lectures-presentations using blackboard, transparencies, fixed overhead projector, video and television</li> <li>• Discussion in the classroom and feedback</li> <li>• Work in small groups or individually</li> <li>• Student presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</li> <li>• Visiting speakers</li> </ul>	
TEACHING METHODS	Activity	Semester Workload
	Lectures	52 hours
	Study of bibliography	73 hours



	<p><i>Course total</i></p> <p><i>(25 hours workload per credit unit)</i></p>	<p><i>125 hours (5 ECTS)</i></p>
<p><b>STUDENT PERFORMANCE EVALUATION</b></p>	<p><i>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</i></p>	

#### ATTACHED BIBLIOGRAPHY

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## 4.2.2 FIRST AID

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	8TH
COURSE TITLE	FIRST AID		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	5
LABORATORY		1	
COURSE TYPE	GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/.....">https://eclass.uop.gr/courses/.....</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><i>The student will be able after the end of the course to:</i></p> <ol style="list-style-type: none"> <li><i>1. apply first aid in emergencies,</i></li> <li><i>2. present the possible injuries and emergencies that require immediate first aid with precision,</i></li> <li><i>3. interpret methods and techniques for fast, cool and safe approach of the patient,</i></li> </ol>

4. analyze the severity of the patient's condition,
5. set the priorities for the provision of First Aid (including the provision of CPR),
6. identify key observations and actions to deal with emergencies,
7. determine the way of moving and transporting the patient,
8. identify ways of providing first aid to special groups of patients who are part of a therapeutic exercise program with confidence.

### General competencies

- Critical Thinking
- Finding and processing information
- Decision making
- Promoting free, creative and inductive thinking
- Production of new research ideas

## SYLLABUS

### Section 1. Introduction and general principles of first aid

- Purpose of first aid.
- General principles of first aid.
- Necessary telephones.
- Patient evaluation.
- First Aid Pharmacy, bandages

### Section 2. Traumatic injuries

- Sprains: recognition, prevention and provision of First Aid.
- Muscle contusions: recognition, prevention and provision of First Aid.
- Dislocation, recognition, prevention and provision of First Aid.
- Fractures: Recognition, prevention and provision of First Aid.
- Safe transportation

### Section 3. Epidemiology, variety of bandages

- Types of bandages and their use (triangular, cylindrical, octagonal, head and eye bandage, mesh bandages).
- Splints: types, utility and their application.

### Section 4. Bleeding

- Types of bleeding (traumatic etiology, nosebleeds, otorrhea, gastrointestinal bleeding, hemoptysis, varicose veins - hemorrhoids).
- Incident assessment.
- Provision of first aid.

### Section 5. Poisonings - Stings

- Categories of poisoning (from food, pesticides, animals).
- Snake bites, Animal bites, Insect bites, bites-contact with marine organisms and first aid.
- Identification of poisonings, prevention and provision of First Aid
- Removal and neutralization of poison, special treatments and antidotes to poisons

### Section 6. Thermal injuries

- From heat (burn, heatstroke), from cold (frostbite), sun, sunstroke, electricity (electric shock, lightning strike), radiation, drowning)
- Fever / Hypothermia
- Recognition and provision of first aid
- Burns (types, classification): Burn identification, prevention and First Aid

### Section 7. Special injuries, foreign bodies

*-Injuries from foreign bodies*

*-Foreign body on the skin, in the eye, in the nose, in the ear, ingestion of a foreign body. Treatment and provision of first aid*

### **Section 8. Drowning**

*-Drowning by a foreign body: recognition, first aid*

*-Drowning in water: identification, first aid*

### **Section 9. Cardiovascular and Respiratory Diseases and First Aid**

*-Cardiovascular Diseases: Treatment of acute coronary heart disease (myocardial infarction, angina, cardiac arrest), tachycardia, bradycardia, hypertension, hypotension*

*-Respiratory diseases (Respiratory disorders, airway obstruction, artificial respiration)*

### **Section 10. Neurological and other diseases and first aid**

*-Stroke, Craniocerebral Injuries: Recognizing and Providing First Aid*

*-Loss of consciousness / fainting: recognition and first aid*

*-Shock / recognition and first aid*

*-Convulsions: recognition and provision of first aid*

### **Section 11. Diabetes section and first aid**

*-Risks for a diabetic patient and a patient undergoing a therapeutic exercise program. Hypoglycemia. Prevention and provision of First Aid*

*-Fainting, vomiting, convulsions, allergic reactions, diabetic coma*

### **Section 12. Cardiopulmonary Resuscitation (CPR)**

*-Introduction to artificial respiration and cardiopulmonary resuscitation (CPR)*

*-Basic Life Support (BLS) for adults, children and infants*

*-Recovery position*

*-Use of an automatic external defibrillator*

### **Section 13. Physiotherapy, Therapeutic Exercise and Safety**

*-Organization and equipment of a physiotherapy center for the provision of first aid to an athlete, musculoskeletal injury.*

*-Organization and equipment for providing first aid in a cardiovascular rehabilitation program.*

*-Organization and equipment for first aid in a respiratory physiotherapy program.*

*-Providing first aid on the field.*

*-English terminology related to the subject of the course.*

### **Section 14. Final Assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**TEACHING AND LEARNING METHODS-EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<p><i>The methods and means of teaching the theory of the course include:</i></p> <ul style="list-style-type: none"> <li>• <i>Guided study of key articles and other sources, which are communicated in advance so that the student understands more effectively the content of the lectures-presentations.</i></li> <li>• <i>Lectures-presentations using a blackboard, transparencies, fixed projection system (overhead projector), video and television.</i></li> <li>• <i>Class discussion and feedback.</i></li> <li>• <i>Questions for understanding the important points of each lecture-presentation, which each student answers and self-evaluates.</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (multimedia, electronic discussion through asynchronous education platform and e-mail).</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39 hours
	Laboratory	13 hours
	Study of bibliography	73 hours
	Course total (25 hours workload per credit unit)	125 hours (5 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>A final written evaluation is carried out which includes development questions and / or multiple-choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the laboratory part of the course:</i></li> </ul> <p><i>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</i></p>	

**ATTACHED BIBLIOGRAPHY**

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## 5. OPTIONAL COURSES

## 5.1 WINTER SEMESTER

## 5.1.1 BIOETHICS AND DEONTOLOGY

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	WINTER
COURSE TITLE	BIOETHICS AND DEONTOLOGY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	3
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/2749">https://eclass.uop.gr/courses/2749</a>		

## LEARNING OUTCOMES

## Learning outcomes

*The student will be able after the end of the course to:*

1. distinguish between ethical theories and the ethical view in their profession,
2. evaluate the principles that should govern the physiotherapist-patient relationship,
3. recognize ethical problems that arise in the application of the research process and clinical practice,
4. interpret different and ever-changing roles, relationships, and responsibilities of physiotherapists,
5. assess in depth the historical course of ethical issues in research with knowledge of the principles governing ethics committees for research taking into account mainly but not only the Helsinki Declaration <sup>1</sup> and the Biomedical Research Guidelines involving Individuals <sup>2</sup> as well as the confrontation of arguments on the main issues at stake,
6. describe the Code of Ethics of the Physiotherapists Members of the Panhellenic Association of Physiotherapists, with the main international codes of ethical duties as well as the current legal framework in scientific matters of Physiotherapy.

### General competencies

- Search, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations.
- Production of new research ideas.
- Promoting free, creative and inductive thinking.
- Work in an intercultural environment.
- Production of new research ideas.

### SYLLABUS

#### Section 1. Ethical dilemmas in the health sciences

-Critical thinking and ethical dilemmas.

-Ethical dilemmas in physiotherapy.

-Cases in physiotherapy where there are conflicting moral obligations.

#### Section 2. Ethical Theories in Bioethics I - Ethics of Consequences (Utilitarianism)

-Principle of maximum pleasure.

-Problems of the theory of utilitarianism.

-Utilitarianism in the health sciences.

#### Section 3. Ethical Theories in Bioethics II - Ethics of Duty, Ethics of Virtue

-Principles of ethics based on rules of logic.

-Categorical injunction.

-Problems of duty ethics.

-Ethics of duty in the health sciences.

-The moral character and virtues of the individual.



*-Problems of the morality of virtue.*

*-Ethics of virtue in the health sciences.*

#### **Section 4. Bioethics and Physiotherapy**

*-Cases of ethical dilemmas from physiotherapy practice.*

#### **Section 5. Case study (case study method)**

*-Historical development of case studies.*

*-Ethics of the case.*

*-Case study and applications in Physiotherapy.*

*-A model of a unified approach of the four basic principles and case studies.*

*-Case study and applications in Physiotherapy.*

#### **Section 6. The 4 basic principles in Bioethics (autonomy, justice, principle of benefit or benefit - beneficence, principle of non-harm - non maleficence)**

*-Historical development of the theory of the 4 basic principles.*

*-How to solve moral problems according to the theory of the 4 basic principles and connection with common morality.*

*-Specification and balancing.*

*-Case study and applications in Physiotherapy.*

#### **Section 7. Autonomy**

*-Internal and external autonomy.*

*-The patient 'knows what he wants' and understanding information.*

*-Consent after information.*

*-Confidentiality.*

#### **Section 8. Ethical dilemmas in health science research**

*-Fundamental principles of ethical research.*

*-Historical development of research problems.*

*-What does an ethical research do? Conditions for research in an ethical context.*

*-Ethics of scientific publications - the phenomenon of ghostwriting.*

*-The role of the ethics and ethics committees. Helsinki Declaration. Instructions for Research in Biomedicine involving Individuals.*

### **Section 9. Justice**

*-Theories of justice.*

*-The problem of resource allocation in the health system, rare resources, ethical allocation criteria.*

*-The micro-allocation of resources as a physiotherapeutic task.*

*-Financial crisis and health care: the ethics of shortages.*

### **Section 10. Principle of non-harmful - non maleficence**

*-Protecting the patient.*

### **Section 11. Principle of benefit or beneficence**

*-Balancing between risks and benefits.*

*-Value of life.*

*-Paternalism - a confrontation between the principle of benefit and patient autonomy.*

### **Section 12. Mental illness and bioethics**

*-The rights and representation of the mentally ill: voluntary and involuntary treatment, the case of the use of restrictive means.*

*-The ethics of dependencies.*

### **Section 13. The responsibility of the Physiotherapist. The concepts of health, disability and "good patient"**

-Greek and foreign Legislation, historical review of the Legislation.

-Ethical obligations of the health professional.

-Responsibility towards patients, towards health workers, towards society. The ethical duty to protect public health.

-Ethical and legal responsibility of the Physiotherapist.

-Ethical evaluation of alternative and complementary therapies.

-Provision of care outside the institutional framework - the laws of the "Good Samaritan".

-Tolerance and acceptance of diversity.

-The problem of cultural relativism and setting boundaries.

-Historical path of concepts.

-Definition of concepts and conflicts.

-Evaluation of services, certification, quality control in health.

-English terminology related to the subject of the course.

#### **Section 14. Final assessment**

-The overall performance of the students is evaluated according to the way the course is evaluated.

#### **TEACHING AND LEARNING METHODS-EVALUATION**

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</li> <li>• Class discussion and feedback</li> <li>• Work in small groups or individually</li> <li>• Presentations</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</li> <li>• Visiting speakers</li> </ul>	
TEACHING METHODS	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39 hours
	Study of bibliography	36 hours
	Course total	75 hours (3 ECTS)

	(25 hours workload per credit unit)	
<b>STUDENT PERFORMANCE EVALUATION</b>	The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.	

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## 5.1.2 PHARMACOLOGY

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	WINTER
COURSE TITLE	PHARMACOLOGY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	3
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

## Learning Outcomes

*The student at the end of the course will be able to:*

- 1. list the main drugs used in the various diseases, in combination with the way they are administered and their action,*
- 2. list the main contraindications and precautions of the patient's medication,*
- 3. recognize the possible interaction of the medication with the treatment that will organize and choose for the patient,*

4. collaborate effectively with the rest of the team of health scientists on possible modification of the medication or modification of the physiotherapy treatment, with the aim of the optimal treatment of the patient's disease.

### General competencies

- Critical Thinking.
- Finding and processing information.
- Decision making.
- Promoting free, creative and inductive thinking.
- Production of new research ideas.

## SYLLABUS

### Section 1. Introduction into Pharmacology

-Jurisprudence and issues of bioethics.

-Continuing vocational training.

-Collaboration of a team of health scientists.

### Section 2. Administration and monitoring of medication

-Methods of administration.

-Multipharmacy and effects.

-Monitoring of medication.

-Physiology of the autonomic nervous system.

### Section 3. Basic concepts of pharmacology and pharmacokinetics

-The concentration-time curve.

-Bioavailability.

-Distribution effect factors.

-Interactions.

-Removal.

-Kinetics of continuous and intermittent administration.

-Therapeutic index.

*-Molecular drug targets.*

#### **Section 4. Cardiovascular system**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

#### **Section 5. Respiratory system**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

#### **Section 6. Gynecology and andrology**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

#### **Section 7. Orthopedics/Musculoskeletal system**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

#### **Section 8. Nervous system**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*



**Section 9. Pain/Analgesia**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

**Section 10. Endocrine system**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

**Section 11. Hematologic diseases**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

**Section 12. Mental health**

*-Medication options for the main diseases.*

*-Usual dosage, methods of administration and main contraindications and precautions of the medication.*

*-Interaction of medication with physiotherapy of patients.*

**Section 13. Special pharmacology topics for specific age groups and patient cases**

*-Medication options based on the patient's age.*

*-Special cases of patients and medication.*

*-English terminology related to the subject of the course.*

**Section 14. Final assessment**

-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

#### TEACHING AND LEARNING METHODS-EVALUATION

<b>DELIVERY</b>	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	Learning process support through the electronic platform e-class.	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39 hours
	Study of bibliography	36 hours
	Course total (25 hours workload per credit unit)	75 hours (3 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.	

#### ATTACHED BIBLIOGRAPHY

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## 5.1.3 SURGERY

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	WINTER
COURSE TITLE	SURGERY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	3
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<i>The student at the end of the course will be able to:</i>
<ol style="list-style-type: none"> <li>1. recognize surgical diseases and complications,</li> <li>2. define his/her role as a physiotherapist in preoperative and postoperative patients,</li> <li>3. collaborate with the health care team in the surgical clinics.</li> </ol>
<b>General competencies</b>

- *Critical Thinking*
- *Finding and processing information*
- *Decision making*
- *Promoting free, creative and inductive thinking*
- *Production of new research ideas*

## **SYLLABUS**

### **Section 1. Introduction to Surgery. Basic Concepts and Principles**

- Definitions of concepts.*
- The role of the physiotherapist within the health care team in postoperative patients.*

### **Section 2. Pre-postoperative care**

- Preoperative preparation, postoperative treatment, water and electrolyte balance, postoperative care.*

### **Section 3. Surgery, anesthesia and clinical patient**

- Surgical incisions, ways of wound closure, wound healing, healing stages.*
- Factors affecting healing, types of healing, bleeding, postoperative complications, the effect of age on the surgical patient.*
- Types of anesthesia, anesthetics, intravenous anesthetics, opioids, volatile anesthetics.*
- Muscle relaxants, local anesthetics, anesthesia machines, resuscitation, pain.*

### **Section 4. Surgical Inflammation and its causes**

- Synergistic factors of inflammation, symptoms of inflammation, diagnosis of inflammation.*
- Types of inflammation, progression of inflammation, treatment of inflammation, hospital infections, forms of local inflammation, hot abscess, cold abscess, erysipelas, gas gangrene, tetanus.*
- *Chemoprophylaxis in general surgery and its usefulness in surgery.*
- Categories of operations, indicative cases of chemoprophylaxis, preventive antimicrobial drugs by type of surgery, risks from the use of chemoprophylaxis.*

### **Section 5. Burn, Surface Surgery, Microsurgery**

- Types of burns, frequency and severity of burns, treatment of complications.*
- Atonic ulcer, bed sores, coccygeal cyst, hernia, forms, symptoms, treatment, and complications.*
- Suturing of vessels, suturing of nerves, tendons, amputations, welds.*

### **Section 6. Breast diseases**

- Breast examination, postpartum mastitis, chronic cystic mastitis.*
- Breast neoplasms, fibroids, endothelial papilloma, breast cancer.*

### **Section 7. Thyroid gland diseases**

- Diagnosis of thyroid disease, goiter.*
- Diffuse toxic goiter (Graves' disease), nodular goiter, autonomic thyroid damage (AFTL).*
- Thyroid neoplasms, thyroid cancer, surgical treatment of thyroid diseases.*

### **Section 8. Diaphragm diseases**

- Diaphragmatic hernia, sliding septal hernia, paraesophageal and mixed septal hernia, anterior or posterior or Morgagni septal hernia, Bochdalek posterior septal hernia.*

*-Unilateral elevation of the diaphragm, traumatic rupture of the diaphragm.*

### **Section 9. Neurosurgical diseases**

*-Head injury, spinal cord injuries, congenital disorders of the nervous system.  
-Ischemic vascular episode, CNS neoplasms, intracranial inflammation.*

### **Section 10. Thoracic surgery diseases**

*-Hemothorax, pneumothorax, chylothorax, empyema, trauma.  
-Tracheostomy, echinococcosis of the lung, congenital diseases of the chest, neoplasms of the chest.  
-Lung cancer, heart surgery problems, heart and lung transplantation.*

### **Section 11. Surgical diseases of the vessels**

*-Arterial diseases, aneurysm, genuine aneurysm, malignant aneurysm, arteriovenous aneurysm, degenerative aneurysm, septal aneurysm.  
-Venous diseases, post-thrombotic syndrome, varicose veins, varicose veins of the lower extremities, hemorrhoids, varicose veins.*

### **Section 12. Diseases of the esophagus, stomach, duodenum, small and large intestine**

*-Esophageal atresia and tracheoesophageal fistula, esophageal achalasia, esophageal diversion, esophageal trauma, esophageal neoplasms, esophageal varices.  
-Congenital hypertrophic pyloric stenosis, doubling of the stomach, automatic rupture of the stomach, twisting of the stomach.  
-Congenital diseases of the duodenum, congenital diversions of the duodenum, gastroduodenal ulcer.  
-Benign tumors of the stomach, malignant neoplasms of the stomach, cancer of the duodenum.  
-Malrotation or incomplete rotation and fixation, meconium ileum, regional enteritis, small bowel neoplasms, carcinoids, congenital abnormalities of the umbilical cord.  
-Congenital colitis, atresia of the anus, chronic ulcerative colitis, diverticular disease, sigmoid torsion.  
-Juvenile polyps, ringworm, pericardial abscess, pericardial fistula, rectal prolapse, Peutz-Jeghers syndrome, colorectal cancer, orthosigmoid malignancies.*

### **Section 13. Appendicitis, Diseases of the Biliary Liver and Pancreas, Peritonitis - Ileus - Acute Abdomen - Abdominal Trauma**

*-Causes, symptoms, differential diagnosis, complications, treatment.  
-Its effect on infants and the elderly.  
-Trauma to the liver, echinococcosis of the liver, neoplasms of the liver, congenital disorders of the bile ducts.  
-Gallstones, laparoscopic cholecystectomy, cholelithiasis, acute cholecystitis, biliary cancer.  
-Acute pancreatitis, chronic pancreatitis, neoplasms of the pancreas.  
-English terminology related to the subject of the course.*

### **Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING AND LEARNING METHODS-EVALUATION**

DELIVERY	FACE TO FACE
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<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<i>Learning process support through the electronic platform e-class.</i>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Study of bibliography</i>	<i>36 hours</i>
	<i>Course total (25 hours workload per credit unit)</i>	<i>75 hours (3 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<i>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</i>	

**ATTACHED BIBLIOGRAPHY**

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## 5.1.4 PRIMARY HEALTH CARE

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	WINTER
COURSE TITLE	PRIMARY HEALTH CARE		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	3
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><i>The student will be able after the end of the course to:</i></p> <ol style="list-style-type: none"> <li>1. list the roles of the Primary Health Care (PHC) health team,</li> <li>2. distinguish the relationship of PCT health scientists with the patient and support the patient-centered approach during treatment,</li> <li>3. collaborate with other members of the PHC team (interdisciplinary / interprofessional cooperation) with the aim of providing perfect health,</li> <li>4. develop the areas of action of the PHC,</li> </ol>

5. define the role of the health team in research in PHC,  
6. interpret the legal framework of the PHC health team in Greece and in the international environment.

### General competencies

- *Critical Thinking.*
- *Finding and processing information.*
- *Decision making.*
- *Promoting free, creative and inductive thinking.*
- *Production of new research ideas.*

## SYLLABUS

### Section 1. Introduction to the course Primary Health Care

*-The health team of PHC (Definition - Concepts).*

*-Relationship between PHC health scientists and patients, patient-centered approach.*

*- Interdisciplinary / interprofessional cooperation.*

### Section 2. The PHC in Greece and world

*-Integrated (composed) and human-focused PHC (necessity, conceptual approach, definitions-concepts).*

*-The care in the community by the team of PHC (basic principles, advantages, obstacles).*

*-Areas of action of the PHC (prevention, education and health promotion, screening, mental illness, home health care and home care, rehabilitation, treatment, school, workplace, public health services and social care services).*

### Section 3. The role of the general / family doctor in the health team of the PHC

*-Conceptual definitions.*

*-Doctor training and professional rights.*

*-Areas of action of doctors in PHC.*

*-Training and skills of the doctors participating in the PHC.*

### Section 4. The role of the physiotherapist in the health team of PHC

*-Conceptual definitions.*

*-Physiotherapist training and professional rights.*



*-Areas of action of physiotherapists in PHC.*

*-Benefits of integrating physiotherapy in PHC.*

*-Training and skills of physiotherapists participating in PHC.*

### **Section 5. The role of the midwife in the health team of PHC**

*-Conceptual definitions.*

*-Education and professional rights.*

*-Areas of action in PHC.*

*-Training and skills.*

### **Section 6. The role of the nurse in the health team of PHC**

*-Conceptual definitions.*

*-Education and professional rights.*

*-Areas of action in PHC.*

*-Training and skills.*

### **Section 7. The role of the occupational therapist in the health team of PHC**

*-Conceptual definitions.*

*-Education and professional rights.*

*-Areas of action in PHC.*

*-Training and skills.*

### **Section 8. The role of the speech therapist in the health team of PHC**

*-Conceptual definitions.*

*-Education and professional rights.*

*-Areas of action in PHC.*

*-Training and skills.*

**Section 9. The role of the social worker in the health team of PHC**

*-Conceptual definitions.*

*-Education and professional rights.*

*-Areas of action in PHC.*

*-Training and skills.*

**Section 10. The role of the health team in research in PHC**

*-The theoretical background of research in PHC.*

*-The need to document the quality of services and research capacity in PHC.*

*-Academic and applied research in PHC.*

*-Research methodology in PHC.*

*-Axes and areas of research in PHC.*

*-Research topics in the PHC.*

**Section 11. Legislative framework of the PHC health team in Greece and in the international environment**

*-Basic legislation for PHC in Greece.*

*-Recent legislation on PHC.*

*-Individual electronic health record.*

*-The PHC health team in the international environment: Interdisciplinary team and collaboration.*

**Section 12. The health team in PHC: its role in improving the health of the population and the quality of health services**

*-The concept of population health assessment and the contribution of the health team and health services to the PHC: A key task of the health team.*

*-The identifiers of high quality in PHC services.*

*-The effectiveness of the PHC team.*

*-Factors that favor or even hinder the interprofessional cooperation in the PHC.*

### Section 13. The role of PHC in interdisciplinary or interprofessional education

- Interdisciplinary education.
- The health team at PHC: The dual role in education.
- Interdisciplinary / interprofessional cooperation and improvement of health care.
- The impact and effectiveness of interdisciplinary / interprofessional education.
- Promotion of interprofessional education and collaborative practice.
- English terminology related to the subject of the course.

### Section 14. Final assessment

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

#### TEACHING AND LEARNING METHODS-EVALUATION

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<p><i>The methods of teaching the theoretical part of the course include:</i></p> <ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>• Class discussion and feedback.</li> <li>• Work in small groups or individually.</li> <li>• Student presentations.</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</li> <li>• Visiting speakers (after a decision of the sector).</li> </ul>	
TEACHING METHODS	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39 hours
	Study of bibliography	36 hours
	Course total (25 hours workload per credit unit)	75 hours (3 ECTS)

<b>STUDENT PERFORMANCE EVALUATION</b>	<i>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</i>
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**ATTACHED BIBLIOGRAPHY**

1. Καλοκαιρινού-Αναγνωστοπούλου Α. Εφαρμογές Καλών Πρακτικών Ομάδας Πρωτοβάθμιας Φροντίδας Υγείας. ΚΑΛΛΙΠΟΣ, 2015 ([pdf](#)).
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## 5.1.5 HEALTH PSYCHOLOGY AND COMMUNICATION ABILITIES

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	WINTER
COURSE TITLE	HEALTH PSYCHOLOGY AND COMMUNICATION ABILITIES		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	3
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/2532">https://eclass.uop.gr/courses/2532</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p><i>The student will be able after the end of the course to describe:</i></p> <ol style="list-style-type: none"> <li>1. the procedures for providing medical care,</li> <li>2. communication problems in the context of professional interaction health-patient,</li> <li>3. the requirements of health professionals during training and professional training;</li> <li>4. the factors that contribute to maintaining health,</li> <li>5. factors that affect health and contribute to behavior change,</li> <li>6. the process of the disease,</li> <li>7. the meaning of pain, the process of perceiving and evaluating pain, and the methods of pain management,</li> <li>8. psychophysiological disorders and the relationship between stress and illness,</li> </ol>

- 9. stress management,
- 10. serious illness from the patient's point of view,
- 11. chronic illness, disability and aging in the life cycle,
- 12. end-stage disease, loss and mourning.

### General competencies

- Search, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Promoting free, creative and inductive thinking
- Work in an international environment
- Work in an intercultural environment
- Production of new research ideas
- Adaptation to new situations

### SYLLABUS

#### Section 1. Introduction to health psychology

- History of health psychology.
- Definition of concepts related to health psychology.
- Basic issues in medical care.

#### Section 2. Procedures for providing medical care

- The principles of medical care.
- The role of verbal and non-verbal communication.
- Basic models of the relationship between health professionals and patients.

#### Section 3. Communication and communication skills in the context of a health professional and patient meeting

- Ways of communication between health professionals and patients.
- Communication problems that arise during therapeutic interactions and ways of solving them.
- Communication from the patient's point of view.
- Ways of correct behavior towards the patient. Empathy.

#### Section 4. Health professionals: education and training

- The emotional challenges of education and training to health professionals.
- Humanization of the health sciences
- Decision making by medical professionals.
- Stereotypes and decision making.

**Section 5. Maintaining health - Medical communication and physical health**

*-Degenerative diseases.*

*-Primary, secondary, and tertiary prevention, as well as its importance in behavior change.*

*-Individual differences and personal characteristics.*

**Section 6. Factors Affecting Health and Behavior Change.**

*-The role of prevention and faithful adherence to treatment in maintaining and / or changing the patient's behavior.*

*-Procedures for changing the patient's beliefs and attitudes.*

*-Cognitive theory and theories of self-regulation.*

**Section 7. Process of the disease**

*-Health, illness, disease.*

*-Biomedical and biopsychosocial model.*

*-Psychological stimuli and seeking medical help.*

*-Delay in seeking treatment.*

*-The role of the patient. Symptoms and pathogens.*

**Section 8. Pain - Definition of concepts.**

*-Pain and cost of health services.*

*-Pain perception process and theoretical approaches.*

*-Psychological factors and pain.*

*-Ways to measure, evaluate, and treat pain.*

**Section 9. Psychological processes, stress and illness**

*-Psychophysiological disorders and stress.*

*Stress, chronic stress, stressful stimuli, and mechanisms through which stress affects health. General adaptation syndrome and psychoneuroimmunology*

**Section 10. Stress Management**

*-Ways to deal with stress.*

*-Knowledge and ways to deal with stress.*

*-Learned sense of helplessness and stress resistance.*

*-Effective stress management.*

**Section 11. Serious illness from the patient's point of view**

*-Stages of the disease.*

*-Addressing the emotional challenges of serious illness.*

*-Social support and emotional development.*

*-Dealing with emotional conflicts, stressful medical treatments and the stress of hospitalization.*

*-Role of emotions in the healing process.*

**Section 12. Chronic illness, disability and aging related to the life cycle**

*-Chronic illness and disability.*

*-Treatment of chronic disease in children, adolescents, adults and the elderly.*

**Section 13. End-stage illness, loss and mourning**

*-The prospect of death.*

*-Uncertainty and experience of imminent death.*

*-Care of terminal patients.*

*-Loss and sadness. Experiences of pain and mourning.*

*-English terminology related to the subject of the course.*

**Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*



## TEACHING AND LEARNING METHODS-EVALUATION

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>• The laboratory part of the course is taught using the following methods and tools: <ul style="list-style-type: none"> <li>- Demonstration using models and images of organs and systems of the human body</li> <li>- Work in small groups</li> <li>- Presentations</li> </ul> </li> </ul> <p>Learning process support through the electronic platform e-class, use of PC</p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39 hours
	Study of bibliography	36 hours
	Course total (25 hours workload per credit unit)	75 hours (3 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</p>	

## ATTACHED BIBLIOGRAPHY

1. DiMatteo, R. M., & Martis, L. R. (2012). Εισαγωγή στην ψυχολογία της υγείας. Αθήνα: Πεδίο.
2. Ogden, J. (2018). Ψυχολογία της Υγείας (5η έκδοση). Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε.
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## 5.2 SPRING SEMESTER

## 5.2.1 HEALTH ECONOMICS AND MARKETING

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	SPRING
COURSE TITLE	HEALTH ECONOMICS AND MARKETING		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		4	5
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

**LEARNING OUTCOMES****Learning outcomes**

*The student at the end of the course will be able to:*

1. define the basic concepts of the science of Business Administration and Marketing,
2. recognize the socio-economic environment in which Marketing operates and develops within companies and organizations,

3. use the basic concepts of the science of Marketing and Business Administration to interpret the economic phenomena and conditions prevailing in the market,
4. set out key terms in health economics and entrepreneurship,
5. recognize the basic economic models and their role in the field of health.

### General competencies

- Critical Thinking.
- Finding and processing information.
- Decision making.
- Promoting free, creative and inductive thinking.
- Production of new research ideas.

### SYLLABUS

#### Section 1. Introduction to Management

-Definition.

-The importance of management for business efficiency.

-The modern trends of business organization and management.

#### Section 2. The function of Planning and Organization

-Definitions.

-The process of planning and organizing.

-The necessity of planning and organization for the business.

#### Section 3. The function of Management and Control

-Definitions.

-Management and leadership.

-Decision making.

-Methods and techniques of decision making.

-Purpose of the control.

-Necessity of control for the business.

#### Section 4. Entrepreneurship

*-Definition.*

*-The concept of the businessman.*

*-Characteristics of a successful businessman.*

*-Reasons for failure of new businesses.*

*-Rules for business survival.*

### **Section 5. Introduction to Marketing**

*-The concept of Marketing.*

*-Marketing as a business operation.*

*-Basic terminology of Marketing.*

### **Section 6. Marketing mix**

*-Introduction.*

*-Types of business orientation.*

*-Production orientation*

*-Product orientation.*

*-Sales orientation.*

*-Orientation to market needs.*

### **Section 7. Product Differentiation and Positioning. Product Policy**

*-Alternative Variables that the company can use to differentiate a product - successful placement of the company's product.*

*-What is a product - product characteristics - product portfolio - product life cycle - product branding - product packaging - product legal framework.*

### **Section 8. Pricing Policy. Consumer's behavior**

*-Price setting - the role of pricing in the Marketing Mix - service pricing - pricing process - pricing strategies - pricing and external environment.*

*-Elements of consumer behavior and market segmentation.*

### **Section 9. Sales Promotion and Direct Marketing. Direct Marketing Strategic Planning**

*-Definition - difference between Direct Marketing from Marketing to the masses - business communication channels with the customer - comparative advantage and direct Marketing.*

*-Definition - points of differentiation and strategy - creative direct marketing strategy - contribution of the creative team in ensuring the participation of the recipient.*

### **Section 10. Introduction to health economics**

*-Basic economic models.*

*-Microeconomic tools for health economics.*

### **Section 11. Organization and financing of health systems. Health care costs**

*-Statistical tools for health economics.*

*-Financial evaluation - cost effectiveness analysis.*

*-The production of Health - supply and demand.*

### **Section 12. Health system organization. The role of the Health Economy in decision making.**

*-Social insurance.*

*-Hospitals, Health centers, rehabilitation centers.*

*-Physiotherapy and economics.*

*-Non-governmental organizations*

### **Section 13. Introduction to Communication**

*-What does communication mean - communication principles - communication barriers - ways and forms of communication - communication with the potential buyer - role and value of communication in modern business - customer needs and how to understand them - body language.*

*-English terminology related to the subject of the course.*

**Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**TEACHING AND LEARNING METHODS-EVALUATION**

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<p><i>The teaching methods of the course theory include many teaching methods and means, among which:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</i></li> <li>• <i>Class discussion and feedback</i></li> <li>• <i>Work in small groups or individually</i></li> <li>• <i>Student presentations</i></li> <li>• <i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</i></li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	<i>Lectures</i>	<i>52 hours</i>
	<i>Study of bibliography</i>	<i>73 hours</i>
	<i>Course total</i> <i>(25 hours workload per credit unit)</i>	<i>125 hours (5 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</i></p>	

**ATTACHED BIBLIOGRAPHY**

1. Τζωρτζάκης Κ., Τζωρτζάκη Α. Οργάνωση και Διοίκηση. Το Μάνατζμεντ της Νέας Εποχής, Rosili Εμπορική – Εκδοτική Μ. ΕΠΕ, 2008.

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## 5.2.2 CLINICAL DIETETICS

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	SPRING
COURSE TITLE	CLINICAL DIETETICS		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	5
CLINICAL PRACTICE		1	
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

## Learning outcomes

*The student at the end of the course will be able to:*

1. identify and determine the energy expenditure of metabolism as well as select and apply methods for its evaluation,
2. collect, interpret and compose the results of the nutritional evaluation in relation to the health problems and the participation of the special populations in the exercise,
3. identify through clinical reasoning nutritional short-term and long-term goals in relation to exercise, limited mobility and immobilization.

### General competencies

- Critical Thinking
- Finding and processing information
- Decision making
- Promoting free, creative and inductive thinking
- Production of new research ideas

### SYLLABUS

#### A. Contents of the theoretical part of the course

##### Section 1. Introduction to clinical dietetics

-Introduction to the course of Clinical Dietetics and its correlation with nutrition and health.

-Historical background of the theoretical basis of nutrition in relation to the developmental needs of the human species.

##### Section 2. Nutrition and physiology

-The response of the diet to the normal systems of the human body to promote health and in relation to exercise.

##### Section 3. Energy expenditure

-Energy expenditure (kcal-calories), energy systems and metabolism at rest and during exercise.

##### Section 4. Food items and ingredients I.

-Nutrition and carbohydrates.

-Diet and protein.

-Diet and fat.

##### Section 5. Food items and ingredients I.

-Categories of nutrients.

-Water and electrolytes.

-Vitamins and physical performance.

##### Section 6. Nutritional evaluation

*-Nutrition evaluation methods and systems.*

*-Body weight composition and evaluation methods (fat measurement methods).*

### **Section 7. Clinical dietary approach I.**

*-Clinical dietetics and health problems in special groups of the population: exercise-induced asthma.*

### **Section 8. Clinical dietary approach II.**

*-Clinical dietetics and health problems in special groups of the population: obesity - achieving ideal weight.*

### **Section 9. Clinical dietary approach III.**

*-Clinical dietetics and health problems in special groups of the population: cardiovascular problems.*

### **Section 10. Clinical dietary approach IV.**

*-Clinical dietetics and health problems in special groups of the population: diabetes.*

### **Section 11. Clinical dietary approach V.**

*-Clinical dietetics and health problems in special groups of the population: hormonal problems.*

### **Section 12. Clinical dietary approach VI**

*-Clinical dietetics and health problems in special groups of the population: problems of muscles and joints.*

### **Section 13. Clinical reasoning in nutrition**

*-Clinical reasoning and dietary adjustments during exercise and immobilization. Defining Exercise and Diet Prevention Programs - Guidelines for the ACSM (American College of Sports Medicine).*

*-English terminology related to the subject of the course.*

### **Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **B. Contents of the clinical part of the course:**

**Corresponding 14 sections with the theoretical part.**

## TEACHING AND LEARNING METHODS-EVALUATION

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<p><i>The teaching methods of the course theory include many teaching methods and means, among which:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</i></li> <li>• <i>Class discussion and feedback</i></li> <li>• <i>Work in small groups or individually</i></li> <li>• <i>Students' presentations</i></li> </ul> <p><i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail).</i></p>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Clinical Practice</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>73 hours</i>
	<i>Course total</i> <i>(25 hours workload per credit unit)</i>	<i>125 hours (5 ECTS)</i>
<b>STUDENT PERFORMANCE EVALUATION</b>	<p><i>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</i></p> <ul style="list-style-type: none"> <li>• <i>for the theoretical part of the course:</i></li> </ul> <p><i>A final written evaluation is carried out which includes essay questions and / or multiple-choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</i></p> <ul style="list-style-type: none"> <li>• <i>for the clinical part of the course:</i></li> </ul> <p><i>oral examinations, assignment, presentation and application of the physiotherapy intervention and daily evaluation in the nursing area with clinical laboratory exercises and recording of the evaluation sheets of the patients by the students. In each course, the students' participation and their ability to respond adequately to the treatment of the clinical case that is being addressed are evaluated by the teachers. Successful or not, the intervention used, under the guidance of the teacher, is evaluated. Specifically, the examination is based on the ability to approach the patient, receiving a history, the order of evaluation, his ability to set short-term and long-term therapeutic goals and the application of appropriate physiotherapy techniques. The student must have successfully completed the set of specific physiotherapy interventions that cover all physiotherapy</i></p>	

	<p>techniques in each clinic that is employed. The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the clinic is from 0-10 and is determined by the daily clinical presence of the student and are equally calculated by the grade he collects in each clinical placement he performs. The weight of the final examinations in the clinical part corresponds to 30% of the final score (weight coefficient 0.3).</p>
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#### ATTACHED BIBLIOGRAPHY

1. Πλέσσας Σ.Τ. Διαιτητική του Ανθρώπου, Εκδόσεις Φάρμακον Τύπος, 2010.
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3. Κοντογιάννη Μ., Γιαννακούλια Μ., Καράτζη Κ., Φάππα Ε. Εγχειρίδιο Κλινικής Διατροφής, Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα και Βοηθήματα, 2015.
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8. Brown J.E. Η Διατροφή στον Κύκλο της Ζωής, 5η Έκδοση, Ιατρικές Εκδόσεις Δ. Λαγός, 2016.
9. Καφετζόπουλος Ν. Πρακτικός Οδηγός Αθλητικής Διατροφής, Επιστημονικές Εκδόσεις Παρισιάνου, 2018.

## 5.2.3 INTELLIGENT SYSTEMS OF NEW TECHNOLOGIES

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	SPRING
COURSE TITLE	INTELLIGENT SYSTEMS OF NEW TECHNOLOGIES		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	5
LABORATORY		1	
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<i>The student at the end of the course will be able to apply the concepts of Artificial Intelligence, Machine Learning, 3D printing, inertia sensors and new technologies in the health sciences.</i>
<b>General competencies</b>
•Critical Thinking.

- *Finding and processing information.*
- *Decision making.*
- *Promoting free, creative and inductive thinking.*
- *Production of new research ideas.*

## **SYLLABUS**

### **Section 1. Introduction to artificial intelligence**

*-Introduction to artificial intelligence, examples, and applications*

### **Section 2. Representation of knowledge**

*-Basic principles of knowledge representation, types of reasoning, systems of rules*

### **Section 3. Neural networks**

*-Biological neural networks and applications in the health sciences*

### **Section 4. Inertia measurement sensors**

*-Collection and processing of data from accelerometers, gyroscopes and magnetometers.*

### **Section 5. Machine learning**

*-Categories of machine learning algorithms and their applications*

### **Section 6. Data Fusion Algorithms**

*-Operation and applications of algorithms in the export of quantitative data.*

### **Section 7. Experienced systems**

*-Structure, operation tools, development process and experienced system applications*

### **Section 8. Intelligent decision-making systems**

*-Categories of Clinical Decision Support Systems (CDSS)*

### **Section 9. Intelligent biomarker analysis**

*-Biomedical labels, digital labels and applications in the health sciences*

### **Section 10. Applications of artificial intelligence in physiotherapy**

*-Applications of artificial intelligence and machine learning in Physiotherapy, data processing platforms.*

### **Section 11. Systems and applications of 3D printing in orthotics**

*-Advanced 3D printing systems and applications in orthotics*

### **Section 12. Systems and applications of 3D printing in prosthetics**

*-Advanced 3D printing systems and applications in prosthetics*

### **Section 13. Modeling of medical data**

*-Introduction and applications in data modeling in physiotherapy (motion modeling etc)*

*-English terminology related to the subject of the course.*

### **Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

## **TEACHING AND LEARNING METHODS-EVALUATION**

DELIVERY	FACE TO FACE	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<p><i>The teaching methods of the course theory include many teaching methods and means, among which:</i></p> <ul style="list-style-type: none"> <li>• <i>Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television</i></li> <li>• <i>Class discussion and feedback</i></li> <li>• <i>Work in small groups or individually</i></li> <li>• <i>Student presentations</i></li> </ul> <p><i>Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail)</i></p>	
TEACHING METHODS	<b>Activity</b>	<b>Semester Workload</b>
	<i>Lectures</i>	<i>39 hours</i>
	<i>Laboratory</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>73 hours</i>
	<i>Course total</i>	<i>125 hours (5 ECTS)</i>



	(25 hours workload per credit unit)	
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution, and results from the inclusion of the theoretical and laboratory part of the course. A basic condition is the successful completion of both the theoretical and the laboratory part of the course. The evaluation of the student's performance is specialized as follows:</p> <ul style="list-style-type: none"> <li>• for the theoretical part of the course:</li> </ul> <p>A final written evaluation is carried out which includes essay questions and / or multiple-choice questions. The rating is from 0-10. The weight of the final exams in the theoretical part corresponds to 70% of the final score (weight factor 0.7).</p> <ul style="list-style-type: none"> <li>• for the laboratory part of the course:</li> </ul> <p>The final exams are oral, where the student is asked to solve practical problems and perform the required actions. The final grade of the laboratory is from 0-10. The weight of the final exams in the laboratory part corresponds to 30% of the final score (weight factor 0.3).</p>	

#### ATTACHED BIBLIOGRAPHY

1. Haykin Simon, *Νευρωνικά Δίκτυα & Μηχανική Μάθηση*, 3η Έκδοση, 2010
2. Μπότσης Δημητριος, Διαμανταράς Κωνσταντinos, *Μηχανική Μάθηση*, 2019
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## 5.2.4 ELECTRONIC HEALTH

SCHOOL	HEALTH SCIENCES		
ACADEMIC UNIT	PHYSIOTHERAPY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE		SEMESTER	SPRING
COURSE TITLE	ELECTRONIC HEALTH		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		2	3
LABORATORY		1	
COURSE TYPE	OPTIONAL		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

<b>Learning outcomes</b>
<p>The student will be able after the end of the course to:</p> <ol style="list-style-type: none"> <li>1. explain the fundamental concepts of computer science and the evolution of computer technology,</li> <li>2. interpret the basic functions of the electronic health record accurately,</li> <li>3. state the basic principles of operation of the basic Biomedical technology,</li> <li>4. operate the World Wide Web to search and find health information with confidence,</li> <li>5. comment on the use of computers in the field of health,</li> <li>6. obtain valid information on the various links on the World Wide Web,</li> <li>7. prepare text documents using Microsoft Word and tasks using graphics and effects using Microsoft Powerpoint,</li> </ol>

8. solve basic biostatistics problems through Microsoft Excel,  
9. process a database through Microsoft Access.

### General competencies

- *Critical Thinking.*
- *Finding and processing information.*
- *Decision making.*
- *Promoting free, creative, and inductive thinking.*
- *Production of new research ideas.*

### SYLLABUS

#### A. Theoretical part contents

##### Section 1. Health Informatics - Historical Background

- *Historical evolution of health informatics.*
- *Health informatics industries.*

##### Section 2. Introduction to Health Informatics - E-Health Terms - English Terminology

- *Health informatics terminology,*
- *Classification systems*
- *Coding systems*

##### Section 3. Electronic patient file

- *Evolution and levels of the patient file, health record terminology.*
- *Structure and functions of the electronic health file.*
- *Security Issues.*

##### Section 4. Electronic health registers

- *Development of health information networks,*
- *Electronic patient registers*

##### Section 5. Electronic prescription

- *Electronic health services and their applications*

##### Section 6. Telemedicine services

- *Telemedicine - Telemedicine.*

- Telehealth.

- Telecare - Home care.

- Electronic Health - e-Health.

### **Section 7. Individual portable communication systems**

- Individual systems for monitoring and supporting patients

### **Section 8. Data exchange between institutions**

- Electronic collaboration between patients and health care providers

- Exchange of data between different health services

### **Section 9. Health Information Networks**

- Information and communication tools and technologies and applications in health

### **Section 10. Applications of Telemedicine**

- Monitoring and management of health problems

- Monitoring of heart patients.

- Monitoring of neurological patients.

- Support for the elderly.

### **Section 11. Benefits from the application of Telemedicine**

- Provision of upgraded health services to citizens of remote areas

- Dissemination of medical information.

- Intelligent management of medical resources

- Utilization of the "golden hour"

### **Section 12. Telemedicine Network**

- Telemedicine Coordination Centers

- Coordination Management Center.

### **Section 13. Portable Telemedicine terminals**

- Monitoring and recording of patients' biomarkers.

*- Multimedia communication with the Telemedicine Coordination Centers (sending video and audio).*

#### **Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

### **B. Laboratory part contents**

#### **Section 1. Health Informatics**

*-Examples of uses and general applications in Health Informatics.*

#### **Section 2. Terms in the context of e-Health**

*- Electronic applications of classification and coding systems*

#### **Section 3. Electronic patient file**

*- Creation, and integration of data in the electronic patient file*

#### **Section 4. Electronic health registers**

*-Creation, integration of data and practical applications of electronic patient register*

#### **Section 5. Electronic prescription**

*-Demonstration and use of electronic health services*

#### **Section 6. Telemedicine services**

*-Demonstration and use of Telemedicine - Telehealth-Telecare - e-Health.*

#### **Section 7. Individual portable communication systems**

*-Demonstration and applications of individual systems for patient monitoring and support*

#### **Section 8. Data exchange between institutions**

*-Procedure and practical application of electronic cooperation between patients and health care providers. Demonstration of data exchange between different health services*

**Section 9. Health Information Networks**

*-Use and application of information exchange and communication tools in health*

**Section 10. Applications of Telemedicine I**

*-Application of Telemedicine-monitoring and patient management systems*

**Section 11. Applications of Telemedicine II**

*- Application of Telemedicine systems - monitoring and management of patients by pathology - specific issues*

**Section 12. Telemedicine Network**

*- Demonstration of networks for Coordination and management of Telemedicine applications*

**Section 13. Portable Telemedicine terminals**

*- Practical application for recording and sending biomarkers to patients*

**Section 14. Final assessment**

*-The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.*

**TEACHING AND LEARNING METHODS-EVALUATION**

<b>DELIVERY</b>	FACE TO FACE	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<i>Support of learning process through the e-class electronic platform.</i>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	<i>Lectures</i>	<i>26 hours</i>
	<i>Laboratory</i>	<i>13 hours</i>
	<i>Study of bibliography</i>	<i>36 hours</i>
	<i>Course total</i>	<i>75 hours (3 ECTS)</i>

	(25 hours workload per credit unit)	
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of students' performance is carried out in accordance with the regulations of the Foundation. A basic condition is the successful completion of the theoretical part of the course. The evaluation of the student's performance is done with a final evaluation, written or oral. Oral assessment requires the presence of two teachers. The final evaluation of the course takes place after the end of the teaching semester in all the material taught. The student is asked to answer questions that cover equally the teaching units of the course and in addition to a question that requires critical thinking. The rating is from 0-10 and provided that he has answered 80% of the questions.</p> <p>The adequacy of the assessment topics is checked by the Department, which creates a topic bank per subject that is available to students.</p> <p>The final score is entered in the ten-point scale (0-10) with a minimum success score of 5. At the same time the final score is entered in the relevant score scale of the European Credit Transfer and Accumulation System (ECTS), where A, B, C, D, &amp; E is 10%, 25%, 30%, 25% &amp; 10% of successful respectively.</p>	

#### ATTACHED BIBLIOGRAPHY

<ul style="list-style-type: none"> <li>- Μπότσης Ταξιάρχης, Χαλκιώτης Στέλιος. Πληροφορική υγείας Η εφαρμογή της πληροφορικής στο χώρο της υγείας. Εκδόσεις Δίαυλος, Αθήνα 2005.</li> <li>- Ξαρχάκος Κ, Καρολίδης Δ. Μαθαίνετε εύκολα Microsoft Office 2007 Εκδόσεις Άβακας, Αθήνα 2008.</li> <li>- Τόκης Ι. / Τόκη Ε. Πληροφορική Υγείας. Εκδόσεις Τζιόλας, Αθήνα 2005.</li> <li>- Cox J, Frye C, Lambert S, Preppernau J, Murray K. Ελληνικό Office 2007 βήμα – βήμα. Εκδόσεις Κλειδάριθμος, Αθήνα 2008.</li> <li>- Cox J, Preppernau J. Χρήση Microsoft Office Access 2007. Εκδόσεις Β. Γκιούρδας, Αθήνα 2008.</li> <li>- Mantas J. / Hasman A. Πληροφορική της Υγείας. Εκδόσεις Π.Χ. Πασχαλίδης, Αθήνα 2007.</li> </ul>
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#### 5.2.5 DIAGNOSTIC IMAGING

<b>SCHOOL</b>	HEALTH SCIENCES		
<b>ACADEMIC UNIT</b>	PHYSIOTHERAPY		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>		<b>SEMESTER</b>	SPRING
<b>COURSE TITLE</b>	DIAGNOSTIC IMAGING		

INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
THEORY		3	3
COURSE TYPE	OPTIONAL-GENERAL BACKGROUND		
PREREQUISITE COURSES	NO		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://eclass.uop.gr/courses/">https://eclass.uop.gr/courses/</a>		

## LEARNING OUTCOMES

Learning outcomes
<p><i>The student will be able after the end of the course to:</i></p> <ol style="list-style-type: none"> <li>1. identify basic principles on which radiophysics and imaging methods are based,</li> <li>2. interpret different types of imaging tests and the appropriateness of their application,</li> <li>3. present the normal radiologic anatomy &amp; diagnostic imaging of various systems of the human body with precision,</li> <li>4. describe various pathological conditions that cause morphological &amp; functional alterations, which are detected through the classic &amp; modern imaging examinations with confidence.</li> </ol>
General competencies
<ul style="list-style-type: none"> <li>• Critical Thinking.</li> <li>• Finding and processing information.</li> <li>• Decision making.</li> <li>• Promoting free, creative, and inductive thinking.</li> <li>• Production of new research ideas.</li> </ul>
SYLLABUS
<p><b>Section 1. Introduction to diagnostic imaging</b></p>



*-Historical background, discovery of Roentgen (x) rays.*

*-X-ray – Contrast media etc.*

## **Section 2. General Principles of Modern Imaging Methods**

*-X-ray imaging.*

*-Digital Image - Digital Systems & Image Processing.*

*-Computed tomography.*

*-Magnetic resonance imaging.*

*-Ultrasound.*

*-Contrast Media in Radiographic Imaging*

## **Section 3. Characterization of X-rays**

*-Characteristics depending on the direction of the rays.*

*-Anatomical-radiological characteristics of the joints.*

*-Radiologic anatomy of the spine & joints of the upper and lower extremities.*

## **Section 4. Normal-abnormal-traumatic radiologic anatomy-imaging of skull and spine**

*Imaging methods for:*

*-Fractures*

*-Dislocations*

*-Bone Tumors*

*-Diseases-injuries of disc and spinal canal*

## **Section 5. Normal-abnormal-traumatic radiologic anatomy-imaging of scapula and upper limb**

*Imaging methods for:*

*-Diseases*

*-Fractures*

*-Dislocations*

*-Bone Tumors*

## **Section 6. Normal-abnormal-traumatic radiologic anatomy-imaging of pelvis-hips-femur**

*Imaging methods for:*

*-Diseases*

*-Fractures*

*-Dislocations*

*-Bone Tumors*

### **Section 7. Normal-abnormal-traumatic radiologic anatomy-imaging of knee**

*Imaging methods for:*

*-Diseases*

*-Fractures*

*-Dislocations*

*-Bone Tumors*

### **Section 8. Normal-abnormal-traumatic radiologic anatomy-imaging of tibia-fibula-ankle-foot**

*Imaging methods for:*

*-Diseases*

*-Fractures*

*-Dislocations*

*-Bone Tumors*

### **Section 9. Arteriograms-Venograms**

*-Arteriograms-Venograms in the musculoskeletal system*

### **Section 10. Normal-abnormal-traumatic radiologic anatomy-imaging of thorax**

*-Diseases of lungs, pleura, and mediastinum*

### **Section 11. Normal-abnormal-traumatic radiologic anatomy-imaging of cardiovascular system**

*-Diseases of heart, vessels, imaging techniques*

### **Section 12. Digestive and urinary-reproductive system.**

*-Imaging techniques of digestive and urinary-reproductive system*

### **Section 13. Interventional radiology**

- The role-expediency of interventional radiology.
- English terminology related to the subject of the course.

#### Section 14. Final assessment

- The overall performance of the students is evaluated according to the study regulations of the Institution and the way of evaluation of the course mentioned below.

### TEACHING AND LEARNING METHODS-EVALUATION

<b>DELIVERY</b>	<b>FACE TO FACE</b>	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b>	<ul style="list-style-type: none"> <li>• Lectures-presentations using a table, a transparent screen, a fixed projection system (overhead projector), video and television.</li> <li>• Class discussion and feedback.</li> <li>• Work in small groups or individually.</li> <li>• Student presentations.</li> <li>• Use of Information and Communication Technologies (ICT) (Multimedia, electronic discussion through asynchronous education platform and e-mail). Visiting speakers (after a decision of the sector).</li> </ul>	
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester Workload</b>
	Lectures	39 hours
	Study of bibliography	36 hours
	Course total (25 hours workload per credit unit)	75 hours (3 ECTS)
<b>STUDENT PERFORMANCE EVALUATION</b>	<p>The evaluation of the students' performance is carried out according to the regulation of the Institution. The evaluation of the student's performance for the theoretical part of the course is carried out with a final written evaluation which includes development questions and / or multiple-choice questions. The rating is from 0-10.</p>	

### ATTACHED BIBLIOGRAPHY

#### Greek

1. Αργυροπούλου, Γουλιάμος, Δρεβελέγκας, Καραντάνας, Κελέκης, Πρασόπουλος, Σιαμπλής, Τσιαμπούλας, Φεζουλίδης. Κλινική Ακτινολογία, Εκδόσεις Κωνσταντάρια, 2012.
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3. Dafner R. Αρχές κλινικής ακτινολογίας, Εκδόσεις Ζεβελεκάκη, 1994.
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1. *Lisle D. Imaging for students, 4th edition, Hodder Arnold-Hachette, London, 2012.*
2. *Malone, Hazle & Grey. Imaging in rehabilitation, McGraw-Hill, New York, 2008.*
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