UNIVERSITY OF WEST ATTICA

FACULTY OF HEALTH AND CARE SCIENCES

DEPARTMENT OF PHYSIOTHERAPY

Curriculum

Course Description

{Απόφαση Συνέλευσης Τμήματος 26/23.11.2021 (Θέμα 8^{ov})}

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Athens 2018

UNDERGRADUATE STUDIES

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.

GENERAL CHARACTERISTICS OF THE PROGRAM

- Overall number of modules: 47
- Total Mandatory Modules: 42 with the dissertation– 43 with replacement of the dissertation with 2 optional modules of the 8th semester
- Total number of teaching hours/week: 177
- Total teaching hours for the 8 semesters (without exams) 2301
- Number of theoretical hours/week: 121 (68,4%)
- Total number of theoretical hours for the 8 semesters (without exams) 1573
- Number of workshop hours/week without clinical placement: 56 (31,6 %), of which 24 hours are clinical training
- Total number of workshop hours for the 8 semesters (without exams and clinical placement): 728 hours of which 312 hours are clinical training)
- Mandatory clinical placement 704 hours (4 months x 22 days x 8 hours)
- Number of clinical placement per week 40 (5 days x 8 hours)

  Overall Workload 7.200 hours

  ECTS (European Credit Transfer and Accumulation System): 240 (1 ECTS is equivalent to 30 hours of workload)

  Weight Coefficients:

  - 2: Dissertation, Clinical Placement and modules of Clinical Training

  - 1,5: Mixed modules

  - 1: Theoretical modules

CATEGORIES OF LECTURES

GBM = General Background Modules: 10

SBM = Special Background Modules: 8

SM = Speciality Modules: 20

EM = Elective Modules: 9

GBM : General Background Modules: 10

1. Anatomy I
2. Anatomy II
3. First Aid
4. Physiology
5. Pathophysiology
6. Neurophysiology
7. Orthopaedics
8. Neurology
9. English Medical Terminology
10. Basic Principles of Psychopathology

SBM : Special Background Modules:

1. Kinesiology-Biomechanics I
2. Kinesiology-Biomechanics II
3. Deontology and Ethics in Physiotherapy
4. Biophysics
5. Adapted Physical Activity
6. Clinical Ergophysiology
7. Research Methods
8. Ergonomics and Consultancy in Physiotherapy

SM = Speciality Modules: 20

1. Kinesiotherapy
2. Electrophysical Agents in Physiotherapy
3. Clinical Electrotherapy
4. Massage Techniques
5. Chest Physiotherapy

6. Cardiovascular Physiotherapy
7. Clinical Training in Respiratory and Cardiovascular Physiotherapy
8. Manual Therapy
9. Musculoskeletal Physiotherapy for Injuries
10. Musculoskeletal Physiotherapy in Disorders
11. Clinical Training in Musculoskeletal Physiotherapy
12. Sports Physiotherapy
13. Assessment in Physiotherapy- Clinical Reasoning
14. Physiotherapeutic Methods and Techniques in Diseases of the Nervous System
15. Neurological Physiotherapy in Paediatrics
16. Neurological Physiotherapy in Adults
17. Clinical Training in Neurological Physiotherapy
18. Geriatric Physiotherapy
19. Physiotherapy in Special Population Groups
20. Clinical Placement (4 months)

EM = Elective Modules: 9

1. Dissertation
2. Computing in Health
3. Biostatistics
4. Pharmacology
5. Rheumatology
6. Paediatrics
7. Diagnostic Imaging
8. Clinical Nutrition
9. Health Science Management Principles

Modules distribution in Sectors

SECTOR: CARDIOVASCULAR- MUSCULOSKELETAL SYSTEM

GBM : General Background Modules: 10

1. First Aid
2. Orthopaedics
3. Rheumatology
4. Diagnostic Imaging
5. Research Methods
6. Biostatistics
7. Kinesiology-Biomechanics I
8. Kinesiology-Biomechanics II
9. Kinesiotherapy
10. Ergonomics and Consultancy in Physiotherapy
11. Musculoskeletal Physiotherapy for Injuries
12. Musculoskeletal Physiotherapy in Disorders
13. Assessment in Physiotherapy - Clinical Reasoning
14. Clinical Training in Musculoskeletal Physiotherapy
15. Cardiovascular Physiotherapy

SECTOR: NERVOUS SYSTEM

1. Anatomy I
2. Anatomy II
3. Neurophysiology
4. Neurology
5. Paediatrics
6. Basic Principles of Psychopathology
7. Pharmacology
8. Biophysics
9. Electrophysical Agents in Physiotherapy

10. Clinical Electrotherapy
11. Physiotherapeutic Methods and Techniques in Diseases of the Nervous System
12. Neurological Physiotherapy in Paediatrics
13. Neurological Physiotherapy in Adults
14. Clinical Training in Neurological Physiotherapy

SECTOR: RESPIRATORY SYSTEM

1. Physiology
2. Pathophysiology
3. English Medical Terminology
4. Deontology and Ethics in Physiotherapy
5. Computing in Health
6. Health Science Management Principles
7. Chest Physiotherapy
8. Clinical Training in Respiratory and Cardiovascular Physiotherapy
9. Adapted Physical Activity
10. Clinical Ergophysiology
11. Clinical Nutrition
12. Sports Physiotherapy
13. Massage Techniques
14. Manual Therapy
15. Physiotherapy in Special Population Groups
16. Geriatric Physiotherapy

THREADS OF REQUIRED ASSOCIATED MODULES

a/a	MODULES (Tread- Associated)	SEMESTER	CATEGORY
	Clinical Training in Neurological Physiotherapy: Tread	7th	П1-7010
	Neurological Physiotherapy in Adults Associated	6th	П1- 6020
	Clinical Training in Musculoskeletal Physiotherapy Tread	6th	П1- 6010
	Musculoskeletal Physiotherapy for Injuries Associated	4th	П1- 4010
	Clinical Training in Respiratory and Cardiovascular Physiotherapy Tread	5th	П1-5010
	Chest Physiotherapy Associated	4th	П1-4030
	Manual Therapy Tread	5 th	П1 -5040
	Kinesiology-Biomechanics II Associated	2th	П1 -2020
	Musculoskeletal Physiotherapy in Disorders Tread	5th	П1-5030
	Orthopaedics Associated	2th	П1- 2050
	Cardiovascular Physiotherapy Tread	4th	П1-4040
	Clinical Ergophysiology Associated	3th	П1-3050
	Neurological Physiotherapy in Paediatrics Tread	5th	П1-5020
	Neurology Associated	3th	П1- 3010

s/n		MODULES			LECTURE		WORKSHOP		TOTAL		S.W*	ECTS*	P
		MANDATORY			HRS*	S.W*	HRS*	S.W*	HRS*	S.W*			
A*	B*	MODULES	CAT	CODE*									
1st SEMESTER													
1	1	ANATOMY I	GBM	П1-1010	3	150	-		3	150	150	5	11
2	2	PHYSIOLOGY	GBM	П1-1020	3	150	-		3	150	150	5	14
3	3	KINESIOLOGY & BIOMECHANICS I	SBM	П1-1030	3	120	2	90	5	210	210	7	17
4	4	ENGLISH MEDICAL TERMINOLOGY	GBM	П1-1040	3	120	-		3	120	120	4	23
5	5	DEONTOLOGY AND ETHICS IN PHYSIOTHERAPY	SBM	П1-1050	3	150	-		3	150	150	5	26
6	6	BIOPHYSICS	SBM	П1-1060	3	120	-		3	120	120	4	29
		TOTAL 1st SEMESTER			**18**	**810**	**2**	**90**	**20**	**900**	**900**	**30**	
2nd SEMESTER													
7	7	ANATOMY II	GBM	П1-2010	3	150			3	150	150	5	33
8	8	KINESIOLOGY & BIOMECHANICS II	SBM	П1-2020	3	120	2	60	5	180	180	6	36
9	9	NEUROPHYSIOLOGY	GBM	П1-2030	3	120			3	120	120	4	42
10	10	PATHOPHYSIOLOGY	SBM	П1-2040	3	120			3	120	120	4	45
11	11	ORTHOPAEDICS	GBM	П1-2050	3	150			3	150	150	5	49
12	12	ELECTROPHYSICAL AGENTS IN PT	SM	П1-2060	3	120	2	60	5	180	180	6	55
		TOTAL 2nd SEMESTER			**18**	**780**	**4**	**120**	**22**	**900**	**900**	**30**	
3rd SEMESTER													
13	13	NEUROLOGY	GBM	П1-3010	3	150			3	150	150	5	60
14	14	KINESIOTHERAPY	SM	П1-3020	3	90	2	90	5	180	180	6	64
15	15	MASSAGE TECHNIQUES	SM	П1-3030	3	90	2	60	5	150	150	5	70
16	16	CLINICAL ELECTROTHERAPY	SM	П1-3040	3	90	2	90	5	180	180	6	75
17	17	CLINICAL ERGOPHYSIOLOGY	SM	П1-3050	3	150			3	150	150	5	79
		ELECTIVE MODULES											
18	18	RHEUMATOLOGY	EM	П1-3A10	2	90			2	90	90	3	83
19		PAEDIATRICS	EM	П1-3B10	2	90			2	90	90	3	86
		TOTAL 3rd SEMESTER			**17**	**660**	**6**	**240**	**23**	**900**	**900**	**30**	
4th SEMESTER													
20	19	MUSCULOSKELETAL PHYSIOTHERAPY FOR INJURIES	SM	П1-4010	3	90	2	90	5	180	180	6	90
21	20	PHYSIOTHERAPEUTIC METHODS AND TECHNIQUES IN DEASEASES OF THE NERVOUS SYSTEM	SM	П1-4020	3	90	2	90	5	180	180	6	96
22	21	RESPIRATORY PT	SM	П1-4030	3	90	2	60	5	150	150	5	100
23	22	CARDIOVASCULAR PHYSIOTHERAPY	SM	П1-4040	3	90	2	60	5	150	150	5	105
24	23	PHYSIOTHERAPY ASSESSMENT- CLINICAL REASONING	SM	П1-4050	3	120			3	120	120	4	111
25	24	RESEARCH METHODS	SBM	П1-4060	3	120			3	120	120	4	116
		TOTAL 4th SEMESTER			**18**	**600**	**8**	**300**	**26**	**900**	**900**	**30**	

*A: Number of offered Modules

*B: number of modules to obtain a degree

*HRS: Hours Weekly

*S.W.: Semester Workload

*ECTS: European Credit Transfer and Accumulation System

*TOTAL Undergraduate Curriculum [UC]: total hours / SW / ECTS in the 4 years of studies without the inclusion of the clinical placement in the teaching hours

s/n		MANDATORY MODULES			LECTURE		WORKSHOP		TOTAL		S.W*	ECTS*	P
A*	B*	MANDATORY MODULES	CAT	CODE*	HRS*	S.W*	HRS*	S.W*	HRS*	S.W*			
5th SEMESTER													
26	25	CLINICAL TRAINING IN RESPIRATORY AND CARDIOVASCULAR PHYSIOTHERAPY	SM	П1-5010	3	150	8	150	11	300	300	10	122
27	26	NEUROLOGICAL PHYSIOTHERAPY IN PAEDIATRICS	SM	П1-5020	3	120	2	90	5	210	210	7	127
28	27	MUSCULOSKELETAL PHYSIOTHERAPY IN DISORDERS	SM	П1-5030	3	120	2	90	5	210	210	7	131
29	28	MANUAL THERAPY	SM	П1-5040	3	90	2	90	5	180	180	6	139
		TOTAL 5th SEMESTER			**12**	**480**	**14**	**420**	**26**	**900**	**900**	**30**	
6th SEMESTER													
30	29	CLINICAL TRAINING IN MUSCULOSKELETAL P/T	SM	П1-6010	3	150	8	150	11	300	300	10	143
31	30	NEUROLOGICAL PHYSIOTHERAPY IN ADULTS	SM	П1-6020	3	90	2	90	5	180	180	6	149
32	31	ERGONOMICS AND CONSULTANCY IN PHYSIOTHERAPY	SBM	П1-6030	3	90	2	60	5	150	150	5	153
33	32	SPORTS PHYSIOTHERAPY	SM	П1-6040	3	90	2	90	5	180	180	6	160
		ELECTIVE MODULES											
34	33	BIOSTATISTICS	EM	П1-6А10	2	90			2	90	90	3	166
35		PHARMACOLOGY	EM	П1-6В10	2	90			2	90	90	3	169
		TOTAL 6th SEMESTER			**14**	**510**	**14**	**390**	**28**	**900**	**900**	**30**	
7th SEMESTER													
36	34	CLINICAL TRAINING IN NEUROLOGICAL P/T	SM	П1-7010	3	150	8	150	11	300	300	10	173
37	35	GERIATRIC PHYSIOTHERAPY	SM	П1-7020	3	180	-		3	180	180	6	181
38	36	PHYSIOTHERAPY IN SPECIAL POPULATIONS	SM	П1-7030	3	180			3	180	180	6	188
39	37	ADAPTED PHYSICAL ACTIVITY	SBM	П1-7040	3	150	-		3	150	150	5	192
		ELLECTIVE MODULES											
40	38	DIAGNOSTIC IMAGING	EM	П1-7А10	2	90	-		2	90	90	3	195
41		CLINICAL NUTRICION	EM	П1-7В10	2	90	-		2	90	90	3	198
		TOTAL 7th SEMESTER			**14**	**750**	**8**	**150**	**22**	**900**	**900**	**30**	
8th SEMESTER													
42	39	CLINICAL PLACEMENT IN PHYSIOTHERAPY	SM	П1-8010			40+	300	40+	300	300	10	203
43	40	BASIC PRINCIPLES OF PSYCHOPATHOLOGY	GBM	П1-8020	3	150			3	150	150	5	206
44	41	FIRST AIDS	GBM	П1-8030	3	150			3	150	150	5	210
		ELLECTIVE MODULES											
45	42	DISSERTASION	EM	П1-8А10	4	300			4	300	300	10	213
46		COMPUTING IN HEALTH SCIENCES +	EM	П1-8В10 +	2 +	150 +			2 +	150 +	150 +	5 +	216
47		PRINCIPLES OF MANAGEMENT IN HEALTH SCIENCES	EM	П1-8Г10	2	150			2	150	150	5	220
		TOTAL 8th SEMESTER			**10**	**600**	**0**	**300**	**10**	**900**	**900**	**30**	
		TOTAL UC weekly			**121**	**----**	**56**	**---**	**177**	**---**	**-----**	**----**	
		TOTAL UC *			**1573**	**5190**	**728**	**2010**	**2301**	**7200**	**7200**	**240**	

+: CLINICAL PLACEMENT hours are NOT included in the total of the semester, nor in the total.

1st SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	ANATOMY I	GBM	П1-1010	3	150	-		3	150	150	5
2	PHYSIOLOGY	GBM	П1-1020	3	150	-		3	150	150	5
3	KINESIOLOGY – BIOMECHANICS I	SBM	П1-1030	3	120	2	90	5	210	210	7
4	ENGLISH MEDICAL TERMINOLOGY	GBM	П1-1040	3	120	-		3	120	120	4
5	DEONTOLOGY AND ETHICS IN PHYSIOTHERAPY	SBM	П1-1050	3	150	-		3	150	150	5
6	BIOPHYSICS	SBM	П1-1060	3	120	-		3	120	120	4
TOTAL				**18**	**810**	**2**	**90**	**20**	**900**	**900**	**30**

GBM = General Background Modules

SBM = Special Background Modules

SM = Speciality Modules

EM = Elective Modules

Module Outline of 'Anatomy I'

(1) GENERAL

(2) LEARNING OUTCOMES

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-1010	**Semester**	1st
Module Title	Anatomy I		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	3	**5**

Module Type	General Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English), undertaking an essay
Module Website (URL)	

Learning Outcomes

After completing the module, students should be able to:

- Know the cell structure and function.
- Recognize the topology, morphology and the gross texture of tissues, organs and systems of human body (musculoskeletal system, cardiovascular system).
- Know the basic functional mechanisms of anatomical structures, and the way in which each function is served by the given structure.
- Describe the synergy of anatomical structures for performing a common function (movement).
- Use the knowledge gained to deepen the clinical problem and plan appropriate therapeutic intervention with safety for the patient.

- Participate in interdisciplinary working groups to holistically manage patient problems.
- Be familiar with the mechanisms of searching for new scientific knowledge, evaluating new information and applying innovative therapeutic methods.

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Group work- participation in interdisciplinary groups
- Respect for diversity and multiculturalism
- Demonstration of social, professional and ethical responsibility and sensibility on gender issues

(3) MODULE CONTENT

- Methods in the study of human anatomy.
- Cell structure and function.
- Tissues: epithelial, connective, muscle, nervous.
- Detailed description of musculoskeletal components (bones, joints, ligaments, muscles) by anatomical area and their functional association.
  - ✓ Upper extremity: shoulder girdle, upper arm, forearm, and hand
  - ✓ Lower extremity: pelvis, thigh, leg, and foot
  - ✓ Abdomen
  - ✓ Back
  - ✓ Neck
  - ✓ Head
  - ✓ Pelvis and perineum
- Brief description of the heart and main vessels (arteries, veins, lymph nodes) .

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	
	Posting and distribution of literature	
	Interactive teaching	
	Guest speakers approved by the Physiotherapy Department	
	Information relating to	

	scientific activity (conferences, meetings)	
	Total	150
STUDENT ASSESSMENT	Final written examination (100%) of all module content, through : ✓ Multiple choice questions ✓ True-or-false questions ✓ Gap-filling ✓ Short answer questions ✓ Open ended questions	

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Platzer W, Fritsch H, Kohnel W, Kahle W, Frotscher M. Εγχειρίδιο Περιγραφικής Ανατομικής. 3η βελτιωμένη έκδοση.Nicosia: Broken Hill Publishers LTD, 2011.*
  - *Moore K, Dalley A, Agur A. Κλινική Ανατομία. 3η έκδοση. Nicosia: Broken Hill Publishers LTD, 2016.*
  - *Snell R. Clinical anatomy by regions. 9th Edition. Philadelphia, Lippincott Williams & Wilkins, a Wolters Kluwer business, 2012.*
  - *Paulsen F and Waschke J. Sobotta. Atlas of Human Anatomy, Volume 1, 15th Edition. Urban and Fischer, 2013.*
  - *Faiz O, Moffat D. Anatomy at a Glance. Oxford: Blackwell Science, 2002.*
  - *Hansen J. Netter's Anatomy Coloring Book. 2nd Edition, Philadelphia, Saunders Elsevier, 2014.*
  - *Netter HF. Atlas of Human Anatomy. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης, 2004.*
  - *Netter HF. Hansen TJ, Benninger B, et al. Atlas of Human Anatomy. MO: Saunders, 2010.*

Module Outline of 'Physiology'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-1020	**Semester**	**1st**
Module Title	Physiology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	2	
Workshops	1	
Total	3	5

Module Type	General Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The aim of this module is based on the students' to understand the physiological functions and the homeostatic mechanisms of the human body systems, the functions and complexity and functional interdependence of different body systems, the physiologic parameters of their functions through the cells to organs and body systems. After completing the module, the students should be able to: Know and describe the normal functions and the mechanisms of reciprocal regulation of the human organism at the cell, tissue, organ and system level, and define their complications.
General Competences

- Independent Work
- Teamwork
- Clinical decision making
- Search, analyse and synthesize data and information using the necessary technologies

(3) MODULE CONTENT

- Fundamental concepts of human physiology. Principles of organisation and function of the human organism in tissues and systems. Regulation of physical functions and control systems. Inner environment and homeostasis. Compartmentalisation of the fluids of the body, acidobasic balance, osmosis regulation.
- Cell: Structure and function of the normal cell, structure of the cell membrane, organelles, explanation of the function of the transmembrane and intracellular receptors, of the nucleus and of the genetic material, and achievements in the investigation of the genetic code.
- Blood: General principles of the blood, cells, plasma, physical and chemical properties of plasma, measures such as haematocrit, hemopoiesis (foetal and post-foetal), ways to study the bone marrow and the lymph nodes, ways to study a complete blood count, haematocrit & haemoglobin and their importance, red blood cells (structure, function), haemoglobin (molecular structure, properties of normal haemoglobin, abnormal haemoglobins), white blood cells (types, properties of white blood cells per cellular group and leukocellular type, variations and its importance), platelets (structure, properties, function), immunity (antibody mediated, structure and function of antibodies, cellular immunity, types and reference to their disorders), blood coagulation and relative disorders, tissue compatibility antigens, ABO types, blood types and how to check them, reference to related issues during transfusion.
- Immune system: Fundamental analysis of the structures and functions of the immune system and reference to related disorders.
- Respiratory system: Comparison of respiratory functions in lungs and blood, airways (anatomical and physiological components), alveolar capillary membrane (microanatomy and function). Regulation of respiratory function, types of breathing. Pulmonary adaptation to special conditions – hypoxia, hypercapnia, hypocapnia. The mechanics and workload of breathing, spirometry data and deviations relative to age and main diseases, tests of the respiratory system, respiratory centre.
- Cardiovascular system: Elements of anatomy, large and small circulation, structure of the myocardium, conduction system of the heart, structure and function of the myocardium, molecular basis of myocardial contraction, rest and action potential of the myocardial muscle, mechanical response, length-tension relationship, pacemakers, myocardial contractility, mechanical workload of the heart, heart sufficiency and reserve, cardiac cycle, systolic volume, heart rate, supply, heart sounds/murmurs, small and large circulation and blood flow, coronary flow, vascular pressure, aortic pressure, arterial pressure, pulmonary circulation, bioelectric heart phenomena (ECG). Neuro-regulation of the circulation – vasomotor centres.
- Lymph system – Lymph: structure, composition, circulation, lymph vessels and nodes.
- Digestive system: Structure of the gastrointestinal tract. Salivary glands. Mastication and swallowing. The stomach and its function. Function of the small and large intestine. Microbial intestinal flora. Gastrointestinal hormones. Vomiting. Pancreas, liver – gall bladder. Digestion and secretions. Absorption. Diet – metabolism. Regulation of food intake. Body composition. Energy consumption.
- Thermoregulation: Homeothermy. Mechanisms of heat production and removal. Central regulation of temperature. Fever, Hypothermia, Hyperthermia.
- Nervous system: The neuron, types of neurons. Synaptic transmission, neuronal circuits. Sensory receptors. Membrane potentials. Morphological and functional organisation of the nervous

system. Central-peripheral nervous system. Autonomic nervous system. Sleep – arousal. Cerebral cortex – memory. Electroencephalography. Reflexes. Balance. Posture and movement. Pyramidal – extrapyramidal system. Basal ganglia – cerebellum. Sensations and sensory organs. Somatic sensations. Pain. Special senses (sight, hearing, taste, smell).

- Muscular system: Types of muscle fibres. Neuromuscular Junction. Muscle contraction. Tetanic contraction. Muscle fatigue. Muscle tone. Muscle work. Types of muscle disorder, central and peripheral palsy.
- Endocrine system – hormones: Hormones. Chemical nature of hormones. Action pathway of hormones. Mechanism of retrograde reciprocal regulation. Endocrine glands. Hypothalamus, pituitary gland. Current views concerning the cooperation between the nervous and endocrine system. Pineal gland. Thyroid gland, parathyroids. Adrenal glands. Endocrine functions of the pancreas. Diabetes mellitus. Endocrine pancreatic tumours. Endocrine function of the gastrointestinal tract and brain-intestine axis. Endocrine tumours of the gastrointestinal system. Male and female genital system, reproductive function. Genital hormones. Spermatogenesis. Female genital system. Copulation. Fertilisation. Gestation. Reference to the hormonal function of gestation. Latest developments in reproductive function and techniques of assisted human reproduction.
- Kidneys – urinary system: Kidney anatomy, histology. Glomerular filtration. Reabsorption – excretion. Urine concentration and dilution. Formation of urine. Functions of the urinary tract. Urination. Balance of fluids and electrolytes. Control of pH. Endocrine function of the kidneys. Basic – acidic balance.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

Delivery	Taught class lectures
Use of Information and Communication Technology (ICT)	Open e-class platform
Teaching Organization	

Activity	***Semester Workload***
Lectures	110
Workshops	40
Total	150

Student Assessment	• Final written examination (70%) • Exercises (30%)

(5) SUGGESTED READING

- Suggested Reading :

- *Πλέσσας Σ. Φυσιολογία του ανθρώπου. Αθήνα: Φάρμακον Τύπος, 2010. 25*
- *Χανιώτης Φ. Φυσιολογία του Ανθρώπου. Αθήνα: Εκδόσεις Λίτσας, 2009.*
- *BoronW, BoulpaepE. Ιατρική Φυσιολογία. Αθήνα: Ιατρικές εκδόσεις Π.Χ.Πασχαλίδης, 2006.*
- *GuytonAC, HallJE. Ιατρική Φυσιολογία. 11η Έκδοση. Αθήνα: Επιστημονικές Εκδόσεις ΠαρισιάνουΑΕ, 2008.*
- *HallJE. Ανασκόπηση Ιατρικής Φυσιολογίας. Αθήνα: Επιστημονικές Εκδόσεις ΠαρισιάνουΑΕ, 2010.*
- *McGeownJG. Συνοπτική Φυσιολογία του Ανθρώπου. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδης, 2008.*
- *MulroneySE . Βασικές Αρχές Φυσιολογίας. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδης, 2010.*
- *NetterF. Άτλας Φυσιολογίας του Ανθρώπου. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδης, 2004.*
- *Silbernagi S, Florian N. Εικονογραφημένο Εγχειρίδιο Παθοφυσιολογίας.Θεσς/νίκη: Εκδόσεις Σιώκης, 2002.*

MODULE OUTLINE of 'KINESIOLOGY & BIOMECHANICS I'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDERGRADUATE		
	Π1-1030	SEMESTER	1st
TITLE	KINESIOLOGY & BIOMECHANICS I		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
Theory (lectures) and Practical (practical exercises)		Theory: 3 Practical: 2 Total: 5	7
MODULE TYPE	Special Core Course		
PRE-REQUIRED MODULES			
TEACHING AND EXAMINATION LANGUAGE:	Greek		
MODULE SUITABLE for ERASMUS STUDENTS	Yes (English)		
MODULE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes
• The course aims are for the student to acquire the necessary knowledge about kinesiology and biomechanics in the field of Physiotherapy, i.e. the identification and study of human movement. Emphasis is placed both on the function of biological materials and tissues and on the effects of loading on the human tissues and systems. • In particular, the student will study the principles that underlie movement, the mechanics of biological materials, the terminology used, the role of muscle action, the effect of intrinsic and extrinsic factors (e.g. gravity), and the procedures and methodology for motion analysis. The student will gain knowledge about the kinesiology and biomechanics of the shoulder girdle. • The student, after completing the subject successfully, will be able to: • Comprehend and analyze the human movement through the application of principles of mechanics, to demonstrate the movements asked and to name the movements performed, therefore understand and use the relevant terminology • Comprehend and detect the effect of intrinsic and extrinsic factors on movement and be able to modify movement by implementing the desired changes (e.g. in muscle work) by modifying the intrinsic and extrinsic factors (e.g. change positions, change length of lever arm, etc.). • Comprehend the neuromuscular mechanisms that underlie human movement • Define the muscle work performed • Understand the kinesiology and pathokinesiology of the shoulder girdle an its elements • Identify and assess the function of the shoulder girdle structures during movement and do an in-depth analysis

- Palpate the tissues of the shoulder girdle and perform a manual muscle strength test for specific muscles

- **General Competences - Learning Outcomes**
  - Search, analysis and synthesis of data and information with the use of appropriate technologies (internet, databases, software, etc.)
  - Decision making
  - Individual work
  - Team work
  - Evaluation and self-evaluation
  - Promote of free, creative and deductive thinking
  - Develop skills of oral and written presentation of scientific knowledge

(3) MODULE CONTENT

- **<u>Introduction to Kinesiology and to Mechanics of Movement</u>**

  Historical perspective. The philosophy of the necessity of movement study and its utility in physiotherapy. Biomechanics: Definition, scientific fields and applications, past, present and future. Basic principles. The human body and its parts. Reference systems – Planes and axes of movement. The human body and the external environment. Positions of the human body (standing, prone, etc.). Force, torque, friction, gravity, levers, force couples, pull angle, center of mass, moment – inertia, work – energy.

  <u>*Practical*</u>: Human body and space. Understanding the shape of the human body and its parts. Positions of the body in space. Relation between the body, the body parts and its reference systems (planes and axes). Examples and applications. Student assessment.

- **<u>Movements and reference systems – Terminology</u>**

  Types of bones and joints. Degrees of freedom. Basic principles of joint motion. Terminology and naming of movements. Range of motion. The movements of the parts of the human body and their range of motion.

  <u>*Practical*</u>: Movements of the human body. Identification and execution of all the body movements in different positions in space and in different parts of ROM. Examples and applications. Student assessment.

- **<u>Muscle function</u>**

  Introduction to muscles (structure – types). Physiological and mechanical advantage. Types of muscle contractions. Length-tension relationship and length-velocity relationship. Insertion angle. Basic principles of muscle power control. Muscle force couples in the human body and their role.

  <u>*Practical*</u>: Movements of the human body & muscle work I. Presentation – palpation of muscle parts during contraction. Identification of muscle work during the execution of isolated body parts movement in different positions in space. Examples and application. Student assessment.

- **<u>Coordination of the muscle system</u>**

  The role of muscles and the coordination of the muscle system. Single- dual- and multi joint muscles. Agonists, antagonists, stabilizers & neutralizers.

  Force systems. Compilation and analysis of forces. Action – reaction. Levers and pulleys. Lever arms. Kinetic chains.

  <u>*Practical*</u>: Movements of the human body and muscle work II. Identification – demonstration of

single- and multi joint muscles. Identification of muscle work during the execution of movements of the human body in different positions in space. Identification of muscle groups and their role during their activity in specific movements. Examples and applications. Student assessment.

- **Kinesiology of the human body as a whole**

  Introduction to the kinesiology of the upper & lower limb: osteology, muscle groups, function and role. Scapulohumeral rhythm. Differences and similarities between upper and lower limb.

  Introduction to the kinesiology of the spine: osteology, muscle groups, function and role of the spinal segments in posture and motion. Differences and similarities between the spinal segments. Pelvic movements – pelvic lumbar rhythm. Torso-pelvis-lower limb linkage.

  Characteristic examples of movements, or structures of the human body where the principles taught in previous lectures are presented and analyzed: cooperation of quadriceps – hamstrings and closed-open kinetic chain, levers and plantar flexors, force couple – pelvic tilts and kinetic chain, insertion of elbow muscles – speed and force, etc.

  Practical: Movements of the human body and muscle work III. Identification of muscle work during the execution of movements of the human body in different positions in space, in different ranges of motion, in combination with the physiologic and mechanical advantage. Identification of muscle groups and their role during specific movements. Role and activation of single – and multi joint muscles in specific movements. Examples and applications. Student assessment.

- **Introduction to the analysis of human movement**

  Stages of motion analysis – methodology. Observation. Defining the limits of movement. Dividing the movement into stages. Identification of factors that affect movement. Reasonings and conclusions. Kinesiological analysis of everyday activities: ascend-descend stairs, change of body position, etc.

  Practical: Movements of the human body and muscle work IV. Identification, analysis and performance by the students of movements that impose the adaptation of muscle work regarding the type of muscle contraction and the cooperation between muscle groups. Examples and application. Student assessment.

- **Effect of extrinsic factors on movement**

  Movement and physical environment: earth pull, air resistance, effect of fluids, external resistance, etc. Movement and external objects: push and pull, throwing, striking, kicking, impact, friction, hang and support. Presentation and analysis of characteristic examples.

  Practical: Identify and demonstrate the effect of extrinsic and intrinsic factors on muscle work: increase-decrease of the force/resistance lever arm, change of kinetic chain, use of objects (springs, elastic bands, etc). Examples and applications. Student assessment.

- **Biomechanical study of human movement**

  Observation. Quantitative parameters of movement: record time and distance. Kinematic analysis: Definition, basic principles, techniques (photographic, goniometry, etc.). Alignment – cyclic motion, kinematics in 2D and 3D. Translation, velocity, etc.

  Kinetic analysis: Definition, basic principles, techniques. Scalar and vector quantities. Internal-external product. Internal & external forces.

  Energy requirements of motion. Connection between kinetic and kinematic analysis. Techniques: Force plates, optoelectronic markers, electrogoniometers, EMG, etc.).

  Practical: Presentation, analysis and demonstration of translations of the human body with emphasis placed on particular musculoskeletal structures, e.g. shoulder girdle & scapulohumeral

rhythm, torso-pelvis and pelvic rhythm, etc. Examples and applications. Student assessment.

- **Neuromuscular control of human movement**

  Neurophysiological foundation of the human movement. Central and peripheral nervous system. Proprioceptors. Motor unit. Muscle tone. Volitional and reflex movement.

  Practical: Presentation and analysis of human movement examples that incorporate the elements already taught in previous sections in order to integrate knowledge. Student assessment.

- **Standing posture & Balance**

  Centre of gravity, stability and equilibrium. Balance control and the factors that affect it. Muscle work in standing. Significance of standing posture. Support and factors regarding standing posture. Postural and balance adaptations and external factors. Adaptations due to change of position: quadrupedal, kneeling position, etc.

  Practical: Presentation, performance and analysis by the students of movements & the locomotion of the human body, as well as everyday activities (e.g. ascend stairs, sit to stand, etc). Exercises in the methodology of motion analysis. Examples and applications with emphasis placed on standing posture and balance. Student assessment.

- **Basic principles of biomechanics and of the mechanics of biological materials and fluids**

  Basic principles of strength of materials. Types of loading (compressive, tension, shear, rotational, flexion, complex). Stress-strain graphs (yield points, failure points, fatigue, latency, elasticity, plasticity). Constants of properties of materials (young modulus, shear modulus, poison's ratio, etc). Isotropic, anisotropic, orthotropic materials. Biological materials – Introduction. Viscosity – elasticity – viscoelasticity. Viscoelastic properties and simple mathematical models of viscoelastic materials (creep, etc.).

  Mechanical properties: Bone, cartilage, tendon, ligament, skin, neural tissue. Effects of aging and immobilization on biological materials. Basic principles of gas and fluid mechanics. Types of flow.

  Practical: Analysis of complex activities. Presentation and analysis of complex activities (e.g. sport) that include propulsion, pull, throwing, striking, kicking, impact, support etc. Presentation and analysis of complex hypothetical activities (e.g. body activities with constriction of the movement of a body segment) aiming at the observation and identification of the differences compared to normal movement and at the utility of such information for clinical practice. Examples and applications. Student assessment.

- **Introduction to human gait**

  Historical perspective. Utility of the study of gait. Description. Definitions and phases – the gait cycle. Anatomical and kinesiological analysis. Mechanical principles of gait. Macroscopic kinematic analysis temporal and spatial parameters. Gait variations. Running. Differences in the phases of gait/running.

  Practical: Observation and performance of the gait cycle. Gross recording of temporal and spatial characteristics. Relationship between temporal and spatial parameters. The effect of various factors (speed, terrain, etc.) on the gait cycle. Examples and applications. Student assessment.

- **Kinesiology and biomechanics of the shoulder girdle**

  Scapula, clavicle, humerus. Scapulothoracic, glenohumeral, acromioclavicular and sternoclavicular joint. Ligaments. Bone geometry of joint surfaces. Arthrokinematics and osteokinematics of the region.

  Muscles of the region and their function. Agonists, antagonists, neutralizers. Stabilizing role of the muscles & stability mechanisms. Muscular force couples and comparison of muscle forces. Rotator

cuff muscles. Analysis of the forces and loads in the shoulder girdle during activities. Analysis of functional activities and clinical scenarios. Pathokinesiology.

Practical: Observation – overview of the region of the shoulder girdle of a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing. Analysis of movements in open and closed kinetic chain with the use of equipment (elastic bands, weights, horizontal bar, etc.). Examples and applications. Student assessment.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence.
USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)	Open e-class platform
TEACHING ORGANIZATION	***Activity*** / ***Semester workload*** Lectures: 120 Practical: 90 Total: 210
STUDENT ASSESSMENT	Final written examination (50%), which may include: ✓ Multiple choice questions covering the whole course ✓ Short or full answer questions covering the whole course The practical part will be assessed during the semester with obligatory practical exercises, which are required for the final oral examination (50%) for the demonstration of relevant skills and motion analysis. There will be a questions' bank with the questions of previous examinations and projects.

(5) SUGGESTED READING

- *Abernethy, B. The biophysical foundations of human movement. Champaign: Human Kinetics, 2005.*
- *Craik, R.L., Oatis, C.A. Gait analysis: theory and application. St. Louis: Mosby, 1995.*
- *Cutter, N.C., Kevorkian, G.C. Handbook of manual muscle testing. New York: McGraw-Hill, 1999.*
- *Daniels & Worthingham. Έλεγχος Μυϊκής Ισχύος. Salto, 2000.*
- *Enoka, R.M. Αρχές Εμβιομηχανικής & Φυσιολογίας της Κίνησης. Εκδόσεις Πασχαλίδης, 2007.*
- *Floyd, R. T. Manual of structural kinesiology. Boston: McGraw Hill, 2007.*
- *Frost, R. Applied kinesiology: a training manual and reference book of basic principles and practices. Berkeley: North Atlantic Books, 2002.*
- *Hall, S.J. Εμβιομηχανική. Επιστημονικές Εκδόσεις Παρισιάνου, Αθήνα, 2005.*
- *Hamill, J., Knutzen, K.M. Βασική βιομηχανική της ανθρώπινης κίνησης. Αθήνα, Πασχαλίδης, 2007.*
- *Hamilton, N., Luttgens, K. Κινησιολογία: επιστημονική βάση της ανθρώπινης κίνησης. Αθήνα:*

Επιστημονικές εκδόσεις Παρισιάνου Α.Ε , 2013.

- *Hoffman, S.J. Introduction to kinesiology: studying physical activity. Champaign: Human Kinetics, 2005.*
- *Houglum P.A. & Bertoli D.B. Brunnstrom's κλινική κινησιολογία. Αθήνα :Επιστημονικές εκδόσεις Παρισιάνου Α.Ε , 2012.*
- *Kapandji, I. A. Λειτουργική Ανατομική των Αρθρώσεων. (Vol. I,II,III), Πασχαλίδης, 2001.*
- *Levangie, P.K., Norkin, C.C. Joint structure and function: a comprehensive analysis. Philadelphia: F.A. Davis Company, 2001.*
- *Neumann, D.A. Kinesiology of the musculoskeletal system: foundations for physical rehabilitation. 3rd edition, Elsevier 2017*
- *Nordin, M., Frankel, V.H. Basic biomechanics of the musculoskeletal system. Philadelphia: Lippincott Williams & Wilkins, 2001.*
- *Oatis, C.A. Κινησιολογία. Η μηχανική & η παθομηχανική της ανθρώπινης κίνησης. Τόμος Ι-ΙΙ, Εκδόσεις Gotsis 2013.*
- *Ozkaya, N.,Nordin, M. Fundamentals of biomechanics: equilibrium, motion and deformation. New York: Springer, 1999.*
- *Perry J. Gait analysis: Normal and Pathological function. SLACK Incorporated 1992.*
- *Perry, J.F., Rohe, D.A., Garcia, A.O. The kinesiology workbook, Philadelphia: F.A. Davis Company, 1992.*
- *Rose, J., Gamble, J.G. Human walking. Philedelphia: Lippincott Williams & Wilkins, 2006.*

Related scientific journals

- *Journal of Biomechanics*
- *Journal of Anatomy*
- *Clinical Biomechanics*
- *Electromyography and Clinical Neurophysiology*
- *Journal of Electromyography and Kinesiology*
- *Spine*

Module Outline of 'English Medical Terminology'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-1040	**Semester**	**1st**
Module Title	English Medical Terminology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	2	
Workshops	1	
Total	3	4

Module Type	General Core Module
Pre-Required Modules:	
Teaching and Examination Language:	English
Suitable for ERASMUS students:	Yes
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning outcomes
The aim of the course is the teaching of applied knowledge of the English language through exercises in specialised texts of anatomy, physiology, pathology, and related topics, for the training of physiotherapy students in the comprehension of scientific texts with medical – physiotherapeutic terms. Thus, students are introduced to the terminology used in their field and familiarize themselves with the language used in authentic texts about their specialty. Upon completion of the course students will be able to: -read and comprehend textbooks and research articles in the field of Physiotherapy

- be able to attend oral presentations and participate in subsequent discussions - locate resources for further information in the field of their interest -communicate with colleagues -translate specialty physiotherapy texts
General Competences - Learning Outcomes
• Analysis and synthesis of data and information • Independent work • Teamwork

(3) MODULE CONTENT

- Introduction to Physiotherapy
- Chest Physiotherapy
- Cardiovascular Physiotherapy
- Neurological Physiotherapy
- Physiotherapy assessment
- Clinical reasoning
- Body plan
- Body regions and cavities
- Bone anatomy
- Functions of the skeletal system
- Joint injuries
- Osteoarthritis
- Vertebral column and skull
- Disorders of muscle tone and movement
- Nervous system
- As well as grammar and writing exercises.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Face to face
USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)	Open e-class platform
TEACHING ORGANIZATION	Lectures 70 Workshop 30 Writing essays 20 Total 120
STUDENT ASSESSMENT	1. Written final examination (80%) which Includes questionnaires that cover all the course material and are related to multiple-choice questions, selection, right-wrong, fill-in-the-blank and text development

	2. Teamwork presentation (20%)

(5) SUGGESTED READING

- *Dictionary of Medicine, Peter Collin Publishing,2000*
- *American Association of Cardiovascular and Pulmonary Rehabilitation. Guidelines for Pulmonary Rehabilitation Programs. Champaign,Illinois: Human Kinetics, 2011.*
- *Pryor JA, Prasad SA. Physiotherapy for respiratory and Cardiac Problems. Adults and Pediatrics. 4th Edition. Edinburgh: Churchill Livingstone, Elsevier, 2012.*
- *Elli Terzoglou ,Reviewing English Grammar ,third edition,2017*
- *Elli Terzoglou, Exercises to Reviewing English Grammar ,third edition, 2010*
- *Dorland's , Ιατρικό Λεξικό ,εκδόσεις Πασχαλίδη1997*
- *Αγγλοελληνικό Λεξικό Ιατρικών Όρων Μιχαηλίδη*

Module Outline of 'DEONTOLOGY AND ETHICS IN PHYSIOTHERAPY'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Level	Undergraduate		
Module Code	Π1-1050	**Semester**	**1st**
Module Title	**DEONTOLOGY AND ETHICS IN PHYSIOTHERAPY**		

Independent Teaching Activities	**Weekly Teaching Hours**	**Credits**
Lectures	2	
Workshop	1	
Total	3	5

Module Type	General Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The aim of the course of deontology and ethics in physiotherapy is the education of students in issues related to the written and "unwritten" laws/principles that underlie the health professions in Greece and internationally. The students are taught the role and the contribution of the science of physiotherapy in the field of health and the relationship between the physiotherapist and the patient, the patient's family, and other health professionals. The units that comprise the course focus on: a) an understanding of the historical path of the concept "health-disease" during the evolution of humanity, b) the perception of the basic principles of bioethics during the application of physiotherapy techniques and methods, c) the recognition of the indications and contraindications based on the bioethical perspective of the therapeutic goals, d) the perception of the main bioethics principles for research in the field of health and physiotherapy in particular, e) the analysis of the main current bioethics issues that

arise from developments in the field of health, and g) the analysis of the history of physiotherapy and the development of codes of ethics. In this way the students will be able to recognise the value of respecting the patient and the importance of obtaining consent during the decision-making process. Special emphasis is given to the investigation of the current established position and perceptions of the physiotherapist in health care centres, in primary health services and the physiotherapist's participation in multidisciplinary work groups.

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Teamwork

(3) MODULE CONTENT

- Introduction to the concept of HEALTH. a) History of the field of health. b) Concept of health in ancient times. c) Treatment of disease and social dimensions.
- Description and analysis of health system. a) Health systems, grades of health care. b) Development in Greece and the international community. Description and analysis of the history of physiotherapy. c) Physiotherapy from antiquity to present times. d) Education and physiotherapy in Greece and the international community.
- Basic principles of the social dimensions in health. a) Theories of human rights, b) Social changes and effects on the field of health, c) Socioeconomic changes and effects on physiotherapy.
- Basic principles of ethics and social dimensions in the field of health. a) Basic principles of ethics that underlie the relations between health professionals and patients, b) Basic principles of ethics that underlie the relations between health professions and relatives, c) applications in physiotherapy.
- Basic principles of ethics. a) Medical confidentiality, b) Principles of minimum ethics, c) Process of obtaining voluntary consent from the patient, d) non-compliant patients, e) current issues, euthanasia, in vitro fertilisation, transplants, etc.
- Basic principles of ethics. a) Codes of ethics – international regulations and beliefs, b) Codes of ethics in Greece, c) Issues and newer data.
- Legislation and profession. a) Legislation about the practice of the physiotherapy profession, b) professional rights, c) Professional and scientific organisations.
- Physiotherapy and research. a) Codes of bioethics during the design of a research protocol, b) Codes of bioethics for participation in a research protocol, c) Codes of bioethics in funding.
- Quality control in health. a) The concept of quality in the field of health, b) Total quality management, c) Quality control in physiotherapy.
- Evidence-based practice and its effect on decision making and therapy planning in the case of ethical dilemmas.
- Issues in the analysis of bioethical principles. Multidisciplinary groups and the relationships between health professionals.
- Business and physiotherapy. a) The physiotherapist as a freelancer, b) The physiotherapist as part of the business of health care.
- Codes of conduct and bioethics of the Greek collective organisations

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>Delivery</td><td>Face to Face</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>Teaching Organization</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>110</td></tr>
<tr><td>Workshop</td><td>20</td></tr>
<tr><td>Teamwork in bioethics analysis and study of legislation</td><td>10</td></tr>
<tr><td>Small individual comprehension tasks</td><td>10</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>Student Assessment</td><td>1. Written final examination (70%) which includes questionnaires covering all the course material related to multiple-choice, right-to-wrong questions, filling in the blanks and developing text
2. Teamwork presentation (30%)</td></tr>
</table>

(5) SUGGESTED READING

- *Suggested Reading :*
  - *Kuczewski M. & Polansky R., Βιοηθική – Αρχαία θέματα σε σύγχρονους προβληματισμούς, Αθήνα 2007, εκδόσεις Τραυλός*
  - *Πουλής Ι., Βλάχου Π.: Βιοηθική και Δεοντολογία στα επαγγέλματα υγείας, Αθήνα 2017, εκδόσεις Κωνσταντάρας*

Module Outline of 'Biophysics'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-1060	**Semester**	1st
Module Title	Biophysics		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	2	
Workshops	1	
Total	3	**4**

Module Type	General Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English)
Module Website (URL)	

LEARNING OUTCOMES

Learning Outcomes - General Competences
This module aims (a) to provide basic knowledge of physics with focused interest in biological systems, which knowledge is essential for the understanding and interpretation of basic biological and physiological mechanisms of the human body, b) to provide specialized knowledge of physics, upon which current therapeutic and diagnostic methods are based with application in Medicine and Physiotherapy, and c) to familiarize the student with current medical technology and rational way of thinking, which allows for the better evaluation of magnitudes and quantities through simple calculations who derive from measures, examples of applications and exercises in calculations. After completing the module, the students should be able to: • Exhibit basic theoretical knowledge of biophysics regarding the application of the subject in Medical Physics issues. • Understand the functional mechanisms of current technologies, methods and applications in general that are used (or are about to be introduced) in physiotherapeutic research and clinical practice).

(2) MODULE CONTENT

- Introduction to the module (presentation of aims, content, way of teaching and assessment and of bibliography).
- Work and power in the human body.
- Biomechanics: Muscles and forces in the human body. Examples of applications. Exercises.
- Physics of the human skeleton. Structure, composition and strength of bones. Measurement of bone minerals of the human body.
- Fluid mechanics. Pressure and the human body. Application in the cardiovascular system and haemodynamics. Exercises.
- Heat. Basic laws and applications. State of matter. Heat propagation. Radiation of dark body. Thermal radiation.
- Thermography. Application of heat and cold. Exercises.
- Oscillations and waves. Sound and ultrasound. Diagnostic and therapeutic applications. Exercises.
- Electromagnetic radiation. Light sources. Basic principles of Laser.
- Laser systems. Properties of radiation.
- Interaction of lights and body. Applications of Lasers in Physiotherapy. Safety of laser systems use.
- Protection from Laser radiation.
- Interaction of lights and body. Applications of Lasers in Physiotherapy. Safety of laser systems use.
- Protection from Laser radiation.
- Electrical and magnetic properties. Biodynamics. Stimulation of nerves and muscles.
- Electrical signals from the human body. Electrical diathermy. Examples of applications.
- Visit to a Physics laboratory. Execution and demonstration of selected experiments

(3) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	90
	Workshops	30
	Total	120
STUDENT ASSESSMENT	Final written examination (70%). Workshops: Continues student assessment in laboratory exercises (30%).	

(4) SUGGESTED READING

- *Suggested Reading:*

- *Γεωργίου Ε. Ιατρική Φυσική. Αθήνα: Εκδόσεις ΠΧ Πασχαλίδης, 2008.*
- *Προυκάκης Χ. Ιατρική Φυσική, Τόμοι Α',Β' και Γ'. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2004.*
- *Σιανούδης Ι. Βιοφυσική: Θέματα Ιατρικής Φυσικής. Αθήνα: Εκδόσεις Λύχνος, 2008.*
- *Τζαφλίδου Μ. Ιατρική Φυσική, Βιοηλεκτρισμός, Οπτική, Θερμότητα-Ψύχος. Αθήνα: Εκδόσεις Gutenberg, 2010.*
- *Ψαράκου Κ, et al. Ιατρική Φυσική, Τόμος 2ος. Θεσσαλονίκη: Εκδόσεις University Press, 2010.*
- *Cameron JR, Skofronick JD, Grant RM. Φυσική του Ανθρωπίνου Σώματος. Αθήνα: Επιστημονικές Εκδόσεις ΓΚ Παρισιάνου ΑΕ, 2002.*
- *Davidovits D. Η Φυσική στη Βιολογία και την Ιατρική. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2013.*
- *Herman I. Φυσική ιατρική του ανθρωπίνου σώματος. Αθήνα: Εκδόσεις ΠΧ Πασχαλίδης, 2009.*
- *Young HD, Freedman RA. Πανεπιστημιακή Φυσική, Τόμοι Α', Β', Γ'. Αθήνα: Εκδόσεις Παπαζήση, 2010.*

2nd SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	ANATOMY II	GBM	П1-2010	3	150			3	150	150	5
2	KINESIOLOGY – BIOMECHANICS II	SBM	П1-2020	3	120	2	60	5	180	180	6
3	NEUROPHYSIOLOGY	GBM	П1-2030	3	120			3	120	120	4
4	PATHOPHYSIOLOGY	SBM	П1-2040	3	120			3	120	120	4
5	ORTHOPAEDICS	GBM	П1-2050	3	150			3	150	150	5
6	ELECTROPHYSICAL AGENTS IN PT	SM	П1-2060	3	120	2	60	5	180	180	6
TOTAL				**18**	**780**	**4**	**120**	**22**	**900**	**900**	**30**

Module Outline of 'Anatomy II'

(1) GENERAL

(2) LEARNING OUTCOMES

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-2010	**Semester**	2nd
Module Title	Anatomy II		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	3	**5**
Workshops	0	
Total	3	**5**

Module Type	General Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English), undertaking an essay
Module Website (URL)	

Learning Outcomes

After completing the module, students should be able to:

- Know the fundamental structure of nerve cell and its functional role.
- Recognize the anatomical, developmental and functional-anatomic divisions of the nervous system (somatic-vegetative nervous system, central-peripheral nervous system, forebrain-hindbrain).
- Know the detailed description of the structures compromised the central nervous system: cerebrum (hemispheres and basal ganglia), diecenphalon midbrain, cerebellum, romboid brain, spinal cord.

- Recognize the separate functional systems and structures that compose them and their connections (motor-somatosensory-limbic system).
- Know the structure of the peripheral nervous system, the muscle groups in which the peripheral nerves are distributed, and the movements subserved by them.
- Know the general description of the parts of the respiratory, urinary, gastrointestinal and endocrine system.
- Know the general description of the sensory organs.
- Use the knowledge gained to deepen the clinical problem and plan appropriate therapeutic intervention with safety for the patient.
- Participate in interdisciplinary working groups to holistically manage patient problems.
- Be familiar with the mechanisms of searching for new scientific knowledge, evaluating new information and applying innovative therapeutic methods.

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Group work- participation in interdisciplinary groups
- Respect for diversity and multiculturalism
- Demonstration of social, professional and ethical responsibility and sensibility on gender issues

(3) MODULE CONTENT

- Structure and function of the neuron--neuroglia.
- Development of nervous system.
- Meninges, cerebrospinal fluid, brain ventricles.
- Brain vascular anatomy (arteries and veins).
- Cerebrum: hemispheres, basal ganglia.
- Diencephalon: thalamus, hypothalamus, the epithalamus, subthalamus, subthalamic nucleus.
- Cerebellum.
- Brainstem: midbrain, pons, medulla, cranial nerves.
- Spinal cord.
- Peripheral nervous system.
- Autonomic nervous system.
- Functional systems (pyramidal, extrapyramidal, sensory (exteroceptive, proprioceptive).
- Sensory organs: eye, ear.
- Structure of respiratory system parts (nose, larynx, trachea, bronchi, lungs).
- Structure of the urogenital system parts (kidney, ureter, bladder, urethra, internal and external genital organs).
- Structure of the gastrointestinal tract (oral cavity, pharynx, esophagus, stomach, small and large intestine, liver, pancreas, gall bladder).
- Structure of endocrine system parts (thyroid, parathyroid, adrenal, pancreatic islets, diffuse endocrine system).
- Skin: layers and skin components.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	
	Posting and distribution of literature	
	Interactive teaching	
	Guest speakers approved by the Physiotherapy Department	
	Information relating to scientific activity (conferences, meetings)	
	Total	*150*
STUDENT ASSESSMENT	Final written examination (100%) of all module content, through : ✓ Multiple choice questions ✓ True-or-false questions ✓ Gap-filling ✓ Short answer questions ✓ Open ended questions	

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Platzer W, Fritsch H, Kohnel W, Kahle W, Frotscher M. Εγχειρίδιο Περιγραφικής Ανατομικής. 3η βελτιωμένη έκδοση.Nicosia: Broken Hill Publishers LTD, 2011.*
  - *Moore K, Dalley A, Agur A. Κλινική Ανατομία. 3η έκδοση. Nicosia: Broken Hill Publishers LTD, 2016.*
  - *Snell R. Clinical anatomy by regions. 9th Edition. Philadelphia, Lippincott Williams & Wilkins, a Wolters Kluwer business, 2012.*
  - *Paulsen F and Waschke J. Sobotta. Atlas of Human Anatomy, Volume 1, 15th Edition. Urban and Fischer, 2013.*
  - *Faiz O, Moffat D. Anatomy at a Glance. Oxford: Blackwell Science, 2002.*
  - *Hansen J. Netter's Anatomy Coloring Book. 2nd Edition, Philadelphia, Saunders Elsevier, 2014.*
  - *Fisch A. Neuroanatomy. Draw it to know it. 2nd Edition. New York, Oxford University Press, 2012.*
  - *Netter HF. Atlas of Human Anatomy. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης, 2004.*
  - *Netter HF. Hansen TJ, Benninger B, et al. Atlas of Human Anatomy. MO: Saunders, 2010*

Module Outline of 'Kinesiology & Biomechanics II'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDERGRADUATE		
MODULE CODE	Π1-2020	SEMESTER	2nd
TITLE	KINESIOLOGY & BIOMECHANICS II		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
Theory (lectures) and Practical (practical exercises)		Theory: 3 Practical: 2 Total: 5	6
MODULE TYPE	Special Core Course		
PRE-REQUIRED MODULES			
TEACHING AND EXAMINATION LANGUAGE:	Greek		
MODULE SUITABLE for ERASMUS STUDENTS	Yes (English)		
MODULE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The course aims are for the student to acquire the necessary knowledge about kinesiology and biomechanics in the field of Physiotherapy, i.e. the study and the analysis of human movement, with emphasis placed on the study of the activity of musculoskeletal structures, as well as on the study of the effect of loading on structures and systems of the human body. More specifically, the student will study in-depth all the structures of the human body, as well as the way each structure contributes to stabilization and motion. The student will comprehend the effect of various factors on motion, therefore he/she will gain awareness of the abnormal motion and of the differences between normal and ab normal motion.

After completing the course successfully, the student will be able to:

- Have an in-depth knowledge of the structure and function of the musculoskeletal system and its contribution to the movements and locomotion of the human body.
- Comprehend and analyze normal and abnormal motion.
- Recognize the neuromuscular mechanisms that underlie motion and define objectively the muscle work performed by each musculoskeletal structure
- Comprehend the effect of intrinsic and extrinsic factors on motion and be able to modify motion accordingly (e.g. decrease of demands for a given muscle work, decrease of stress, etc.)
- Palpate the regions under study and perform a manual strength test of the body muscles.

General Competences - Learning Outcomes

- Search, analyze and compose data and information through the use of appropriate technology (internet, databases, software, etc.)
- Decision making
- Individual work

- Team work
- Evaluation and self-evaluation
- Promote of free, creative and deductive thinking
- Develop skills of oral and written presentation of scientific knowledge

(3) MODULE CONTENT

- **<u>Kinesiology and Biomechanics of the elbow and forearm</u>**

  Distal forearm, proximal radius and ulna. Humeroulnar, radiohumeral and proximal radioulnar joints. Ligaments. Bone geometry of joint surfaces. Arthrokinematics and osteokinematics of the region.
  Muscles in the region and their function. Agonists, antagonists, neutralizers. Stabilizing role of muscles and stability mechanisms. Comparison between muscle forces and differentiation between pronation, supination and neutral position. Analysis of forces and loads in the elbow during activities and the use of aids (crutches, etc.). Analysis of functional activities an clinical scenarios. Pathokinesiology.
  <u>Practical</u>: Observation-overview of the elbow region of a volunteer and comparison to a model. Palpation of muscles and non-contractile structures of the region. Muscle strength testing of the region. Motion analysis in open and closed kinetic chain with the use of equipment (elastic bands, weights, horizontal bar, etc.). Examples and applications. Student assessment.
- **<u>Kinesiology and Biomechanics of the wrist</u>**

  Distal radius, distal ulna, carpal bones. Distal radioulnar joint, radiocarpal joint and other carpal joints. Ligaments. Bone geometry of joint surfaces. Arthrokinematics and osteokinematics of the region.
  Muscles in the region and their function. Agonists-antagonists- neutralizers. Stabilizing role of muscles and stability mechanisms. Comparison of muscles forces with radial and ulnar deviation. Force and loads analysis in the wrist during activities and use of aids (crutches, etc.). Analysis of functional activities and clinical scenarios. Pathokinesiology.
  <u>Practical</u>: Observation-oveview of the capral region of a volounteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis in open and closed chain with the use of equipment (elastic bands, weights, horizontal bar, etc.). Examples and application. Student assessment.
- **<u>Kinesiology and Biomechanics of the hand</u>**

  Metacarpals and phalanges of the thumb and fingers. Carpometacarpal, midcarpal, metacarpophalangeal and interphalangeal joints of the thumb and fingers. Ligaments. Bone geometry of joint surfaces. Arthrokinematics and osteokinematics.
  Muscles in the region and their function. Agonists-antagonists- neutralizers. Stabilizing role of muscles and stability mechanisms. Comparison of muscle forces. Synergistic function of the forearm muscles in the wrist and hand. The role of multi-joint muscles and their pulleys in hand function. Architecture of the hand as a whole. The hand as tool. Grips – prehension. Deformities in functional positions. The strength of fist. Force and loads analysis in the thumb and fingers during activities and the use of objects (e.g. pencil). Analysis of functional activities and clinical scenarios. Pathokinesiology.
  <u>Practical</u>: Observation-overview of the hand region in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis in open and closed kinetic chain with the use of equipment (elastic bands, weights, horizontal bar, etc.). Awareness of the grips in action. Examples and applications. Student assessment.
- **<u>Kinesiology and Biomechanics of the head</u>**

The role of the facial and ocular muscles. Mechanics of voice and relevant musculature. Mechanics of swallowing. Tempomandibular joint and function. Force analysis in the tempomandibular joint.
Practical: Observation-overview of the head region in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis with emphasis placed on the activation of isolated structures. Examples and applications. Student assessment.

- **Kinesiology and Biomechanics of the cervical spine**

  Bones, joints, ligaments and muscles: structure, kinematics, arthrokinematics, kinetics. Muscles and their function. Agonists – antagonists, neutralizers, stabilizers. Force and loads analysis in the cervical spine during function. Pathokinesiology. Clinical observations.
  Practical: Observation-overview of the cervical spine in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis with emphasis placed on the activation of isolated structures. Examples and applications. Student assessment.

- **Kinesiology and Biomechanics of the thoracic region – Chest – Breathing**

  Bones, joints, ligaments & muscles: structure, kinematics, arthrokinematics and kinetics. Muscles and their function. Agonists- antagonists – neutralizers – stabilizers. Force and loads analysis in the thoracic spine during function. Pathokinesiology. Clinical observations.
  Practical: Observation-overview of the thoracic spine in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis with emphasis on the activation of isolated structures during breathing. Examples and applications. Student assessment.

- **Kinesiology and Biomechanics of the lumbar region**

  Bones, joints, ligaments & muscles: structure, kinematics, arthrokinematics and kinetics. Muscles and their function. Agonists- antagonists – neutralizers – stabilizers. Force and loads analysis in the lumbar spine during function. Pathokinesiology. Clinical observations.
  Practical: Observation-overview of the lumbar spine in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis with emphasis placed on the activation of isolated structures. Examples and applications. Student assessment.

- **Kinesiology and Biomechanics of the pelvis and spine as a whole**

  Bones, joints, ligaments & muscles: structure, kinematics, arthrokinematics and kinetics. Muscles and their function. Agonists- antagonists – neutralizers – stabilizers. Force and loads analysis in the pelvic during function. Pathokinesiology. Clinical observations. Pelvic floor. Cooperation between the spine regions and the pelvis during body motion. Motion analysis.
  Practical: Observation-overview of the pelvic region in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis with emphasis placed on the activation of isolated structures. Pelvic floor exercises. Examples and applications. Student assessment.

- **Kinesiology and Biomechanics of the hip**

  Innominate bone and proximal femur. The hip joint. Ligaments. Bone geometry of joint surfaces & normal joint alignment. Arthrokinematics and osteokinematics of the region.
  Muscles in the region and their function. Agonists- antagonists – neutralizers – stabilizers. Stabilizing role of the muscles and stability mechanisms. Muscle forces comparison. Force and loads analysis in the hip during activities (e.g. single-leg stance) and use of aids (crutches, etc.). Analysis of functional activities and clinical scenarios. Pathokinesiology.
  Practical: Observation-overview of the hip region in a volunteer and comparison to a model.

Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis in open and closed kinetic chain with the use of equipment (elastic bands, weights, etc.). Examples and applications. Student assessment.

- **Kinesiology and Biomechanics of the knee and the patellofemoral joint**

  Distal femur, patella and proximal tibia and fibula. Tibiofemoral and patellofemoral joint. Ligaments. Bone geometry of joint surfaces & normal joint alignment. Arthrokinematics and osteokinematics of the region.
  Muscles in the region and their function. Agonists- antagonists – neutralizers – stabilizers. Stabilizing role of the muscles and stability mechanisms. Muscle forces comparison. Force and loads analysis in the knee during activities (e.g. single-leg stance) and use of aids (crutches, etc.). Analysis of functional activities and clinical scenarios. Pathokinesiology.
  Practical: Observation-overview of the knee region in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis in open and closed kinetic chain with the use of equipment (elastic bands, weights, etc.). Examples and applications. Student assessment.

- **Kinesiology and biomechanics of the ankle and the foot**

  Distal tibia and fibula, tarsal bones, metatarsals and toe phalanges. Proximal and distal tibiofibular, ankle, subtalar and other joints of the foot. Ligaments. Bone geometry of joint surfaces & normal joint alignment. Arthrokinematics and osteokinematics of the region. Total motion of the foot. Foot arches.
  Muscles in the region and their function. Agonists- antagonists – neutralizers – stabilizers. Stabilizing role of the muscles and stability mechanisms. Muscle forces comparison. Force and loads analysis in the ankle and other joints of the foot during activities (e.g. single-leg stance) and use of aids (crutches, etc.). Loads on the plantar surface of the foot during stance. Analysis of functional activities and clinical scenarios. Pathokinesiology.
  Practical: Observation-overview of the ankle and foot region in a volunteer and comparison to a model. Palpation of muscles and non-contractile structures in the region. Muscle strength testing in the region. Motion analysis in open and closed kinetic chain with the use of equipment (elastic bands, weights, etc.). Examples and applications. Student assessment.

- **Kinesiology and biomechanics of human activities I**

  Walking, walking with aids, running, ascend-descend stairs, standing and standing posture, roll over from supine to prone, rise from the floor, sit to stand, lift and carry weight, use of home utensils, use of work space, lifting objects, activities of personal hygiene, activities of dressing and wearing footware, driving. Emphasis is placed on the kinetic and kinematic analysis of specific activities and especially in muscle involvement and action. Pathokinesiology.
  Practical: Performance, observation and analysis of activities presented during theoretical lectures. Examples and applications. Student assessment.

- **Kinesiology and biomechanics of human activities II**

  Sports activities: throwing, kicking, swimming. Leisure activities: golf, tennis, cycling. Activities that incorporate impact, push and pull, locomotion with suspension and without support.
  Emphasis is placed on the kinetic and kinematic analysis of specific activities and especially in muscle involvement and action. Pathokinesiology.
  Practical: Performance, observation and analysis of activities presented during theoretical lectures. Examples and applications. Student assessment.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence.

<table>
<tr><td>USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>120</td></tr>
<tr><td>Practical</td><td>60</td></tr>
<tr><td>Total</td><td>180</td></tr>
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</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Final written examination (50%), which may include:
✓ Multiple choice questions covering the whole course
✓ Short or full answer questions covering the whole course
The practical part will be assessed during the semester with obligatory practical exercises, which are required for the final oral examination (50%) for the demonstration of relevant skills and motion analysis. There will be a questions' bank with the questions of previous examinations and projects.</td></tr>
</table>

(5) RECOMMENDED READING

Suggested reading

- *Abernethy, B. The biophysical foundations of human movement. Champaign: Human Kinetics, 2005.*
- *Craik, R.L., Oatis, C.A. Gait analysis: theory and application. St. Louis: Mosby, 1995.*
- *Cutter, N.C., Kevorkian, G.C. Handbook of manual muscle testing. New York: McGraw-Hill, 1999.*
- *Daniels & Worthingham. Έλεγχος Μυϊκής Ισχύος. Salto, 2000.*
- *Enoka, R.M. Αρχές Εμβιομηχανικής & Φυσιολογίας της Κίνησης. Εκδόσεις Πασχαλίδης, 2007.*
- *Floyd, R. T. Manual of structural kinesiology. Boston: McGraw Hill, 2007.*
- *Frost, R. Applied kinesiology: a training manual and reference book of basic principles and practices. Berkeley: North Atlantic Books, 2002.*
- *Hall, S.J. Εμβιομηχανική. Επιστημονικές Εκδόσεις Παρισιάνου, Αθήνα, 2005.*
- *Hamill, J., Knutzen, K.M. Βασική βιομηχανική της ανθρώπινης κίνησης. Αθήνα, Πασχαλίδης, 2007.*
- *Hamilton, N., Luttgens, K. Κινησιολογία: επιστημονική βάση της ανθρώπινης κίνησης. Αθήνα: Επιστημονικές εκδόσεις Παρισιάνου Α.Ε , 2013.*
- *Hoffman, S.J. Introduction to kinesiology: studying physical activity. Champaign: Human Kinetics, 2005.*
- *Houglum P.A. & Bertoli D.B. Brunnstrom's κλινική κινησιολογία. Αθήνα :Επιστημονικές εκδόσεις Παρισιάνου Α.Ε , 2012.*
- *Kapandji, I. A. Λειτουργική Ανατομική των Αρθρώσεων. (Vol. I,II,III), Πασχαλίδης, 2001.*
- *Levangie, P.K., Norkin, C.C. Joint structure and function: a comprehensive analysis. Philadelphia: F.A. Davis Company, 2001.*
- *Neumann, D.A. Kinesiology of the musculoskeletal system: foundations for physical rehabilitation. 3rd edition, Elsevier 2017*
- *Nordin, M., Frankel, V.H. Basic biomechanics of the musculoskeletal system. Philadelphia: Lippincott Williams & Wilkins, 2001.*
- *Oatis, C.A. Κινησιολογία. Η μηχανική & η παθομηχανική της ανθρώπινης κίνησης. Τόμος Ι-ΙΙ, Εκδόσεις Gotsis 2013.*
- *Ozkaya, N.,Nordin, M. Fundamentals of biomechanics: equilibrium, motion and deformation. New York: Springer, 1999.*
- *Perry J. Gait analysis: Normal and Pathological function. SLACK Incorporated 1992.*
- *Perry, J.F., Rohe, D.A., Garcia, A.O. The kinesiology workbook, Philadelphia: F.A. Davis Company, 1992.*

- *Rose, J., Gamble, J.G. Human walking. Philedelphia: Lippincott Williams & Wilkins, 2006.*
- *Soderberg, G.L. Kinesiology: application to pathological motion. Baltimore: Williams & Wilkins, 1996.*
- *Trew, M., Everett, T. Human movement: an introductory text. Edinburg: Elsevier / Churchill Livingstone, 2005.*
- *Tyldesley, B., Grieve, J.I. Μύες, Νεύρα και Κίνηση. Αθήνα, Παρισιάνος, 1995.*
- *Zatsiorsky, V.M. Kinetics of human motion. Champaign: Human Kinetics, 2002.*
- *Wood, T.M., Zhu, W. Measurement theory and practice in kinesiology. Champain: Human Kinetics, 2006.*
- *Whittle, M.W. Gait analysis: an introduction. Oxford: Butterworth-Heinemann, 1996.*
- *Winter, D.A. Biomechanics and motor control of human movement. Hoboken: Wiley, 2005.*
- *Σφετσιώρης, Δ. Κινησιολογία Άνω Άκρου. Αθήνα: d.K.S., 2005.*

Related scientific journals

- *Journal of Biomechanics*
- *Journal of Anatomy*
- *Clinical Biomechanics*
- *Electromyography and Clinical Neurophysiology*
- *Journal of Electromyography and Kinesiology*
- *Spine*

Module Outline of 'Neurophysiology'

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-2030	**Semester**	2nd
Module Title	Neurophysiology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	3	**4**

Module Type	General Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English), undertaking an essay
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
After completing the module, students should be able to: • Know the role, the structure, and the function of the nerve cell and the nervous system. • Understand the principles underlying the basic functional systems of the nervous system. • Apply the knowledge gained to the understanding and interpretation of the clinical picture of neurological patients, and consequently to plan rationally therapeutic interventions. • Use the knowledge gained to analyze the clinical and paraclinical data, and to develop an

integrated approach of neurological disease.

- Evaluate the patients holistically and set up diagnostic and therapeutic strategies based on neurophysiological evidence.

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Group work
- Work in an interdisciplinary context
- Development of novel research ideas

(3) MODULE CONTENT

- Nerve cells and behavior: Cellular structure and molecular biology of neurons.
- Brain and behavior.
- Nervous System Development.
- Neuroglial cells.
- Autonomic Nervous System.
- Electrical Neuron Properties: Membrane potential, action potential, action potential propagation.
- Synaptic transmission-Neurotransmitters.
- Neuromuscular junction.
- Muscle cell-Motor unit.
- Muscle contraction.
- Anatomical and functional organization of nervous system-by levels (telencephalon, diencephalon, mesencephalon, rhomboid brain, spinal cord, cranial nerves, spinal nerves).
- Anatomical and functional organization of sensation (exteroceptive and proprioceptive).
- Anatomical and functional organization of motor system (voluntary-involuntary, pyramidal-extrapyramidal system).
- Visual pathway.
- Vestibular system.
- Cognitive functions: language, learning, memory.
- Neurophysiologic diagnostic examinations: Fundamental principles.
- Electroencephalography.
- Electromyography-Electroneurography.
- Evoked potentials: somatosensory, visual, acoustic, cognitive.
- Transcranial Magnetic Stimulation (TMS).

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	

	Posting and distribution of literature	
	Interactive teaching	
	Guest speakers approved by the Physiotherapy Department	
	Information relating to scientific activity (conferences, meetings)	
	Total	*120*
STUDENT ASSESSMENT	Final written examination (100%) of all module content, through : ✓ Multiple choice questions ✓ True-or-false questions ✓ Gap-filling ✓ Short answer questions ✓ Open ended questions	

(5) SUGGESTED READING

- *Suggested Reading:*

- *Βασικές Αρχές Νευροεπιστημών, Kandel, BROKEN HILL PUBLISHERS, 2016*
- *Κλινική νευροφυσιολογία , Επιλεγμένα κεφάλαια από το βιβλίο BRADLEY'S NEUROLOGY IN CLINICAL PRACTICE, 7th EDITION, ELSEVIER, 2016*
- *Electromyography and Neuromuscular Disorders: Clinical-Electrophysiologic Correlations (Expert Consult - Online and Print), 3e Preston and Shapiro, 2012*
- *Atlas of Nerve Conduction Studies and Electromyography, A. Arturo Leis and Michael P. Schenk, Oxford University Press, 2013*
- *Neuromuscular Disorders in Clinical Practice, Katirji, Springer, 2014*
- *Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice 3rd Edition, Jun M.D. Kimura , Oxford University Press, 2016*
- *Clinical Neurophysiology (Contemporary Neurology Series), by Rubin Devon and Daube Jasper,4th Edition, Oxford University Press, 2016*

- Related scientific journals:

- *Clinical Neurophysiology*
- *Journal of Neurophysiology*
- *Journal of Neurology and Neurophysiology*
- *Experimental Brain Research*

-Recommended web sites

https://neuromuscular.wustl.edu Neuromuscular Home Page
www.ifcn.info International Federation of Clinical Neurophysiology
https://www.acns.org American Clinical Neurophysiology Society

Module Outline of 'Pathophysiology'

(1) GENERAL

School	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-2040	**Semester**	**A**
Module Title	Pathophysiology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	3	4

Module Type	General Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The aim of the course is for the students to comprehend the concept of the pathophysiological mechanisms that lead to the presentation of diseases by studying the causes, the background and the expected symptoms in order to contribute in a meaningful way to the provision of health care.

General Competences
• Independent Work • Teamwork • Decision making • Search, analyze and synthesize data and information using the necessary technologies

(3) MODULE CONTENT

- General principles: Revision of normal cellular biology and presentations of the usual abnormal lesions of cells and tissues (e.g. involuted lesions, proliferation disorders, atrophy, types of atrophy, necrosis and death, types of necrosis, degeneration and types of degeneration). Specific pathological conditions of the tissues, such as depositions of organic or inorganic substances, calcification, silicosis, lithiasis, pigmented depositions, haemosiderosis, haemochromatosis, jaundice, types of jaundice. Restoration of histopathological lesions, tissue regeneration. Main characteristics of hyperplasia, hypertrophy and metaplasia of the tissues.
- Genetic disease – pathophysiology of selective genetic disorders (e.g. osteogenesis imperfecta, phenylketonuria, fragile X, Down syndrome, etc.) and impact of the genome project on the science of pathophysiology.

Pathophysiological mechanisms per system:

- Disorders of immune mechanisms. Selective pathophysiology for diseases of the immune system (e.g. hay fever, primary inmmunosuppresive diseases, enzyme deficiency diseases, AIDS, etc.)
- Haematological diseases: (genetic, molecular, biochemical and physiological aspects of haematological function and principles of pathophysiology of haematological disorders). Selective pathophysiology of haematological diseases (disorders of the erythrocytes, leukocytes and platelets, e.g. sideropenic and megaloblastic anaemia, thalassaemias, sickle cell anaemia, leukopenia, agranulocytaemia, thrombocytopenia and aplastic conditions, hypercoagulation disorders.
- Infectious diseases - inflammation: Causes of inflammation, types of inflammatory reaction, histopathology of inflammation, significance and consequences of inflammation. Pathophysiology of selective infectious diseases (e.g. infectious meningitis, endocarditis, pneumonia, diarrhoea, shock, sepsis, etc.).
- Inflammatory rheumatological diseases (acute and chronic): Selective pathophysiology of systemic erythematosus lupus, angiitis, Sjögren's syndrome, gout, etc.).
- Neoplasias: molecular, biochemical and pathophysiological basis of neoplasia. Classification of selective diseases (colorectal cancer, breast cancer, haematological cancers, systemic neoplasias, cancers of the reproductive system in males and females)
- Diseases of the nervous system: Histology, physiology and pathophysiology of the diseases of the upper and lower motor neuron, of the cerebellum, somatosensory diseases, disorders of vision and hearing. Selective pathophysiology of Parkinson’s disease, epilepsies, myasthenia gravis, Alzheimer type dementias, etc.
- Dermatological diseases: Anatomy, histology and physiology of the skin and of the main pathophysiological lesions of such diseases. Selective pathophysiology of psoriasis, skin lichen, erythema multiforme, contact dermatitis, allergic dermatitis, erythema nodosum, pemphigus, angiitis, acne, sarcoidosis and dermatomyositis.
- Pulmonary diseases: Selective pathophysiology of chronic bronchitis and of the pulmonary parenchyma (COPD), asthma, fibrosis, pulmonary and cardiac oedema, embolism).
- Cardiovascular diseases: Selective pathophysiological mechanisms of the production and

establishment of arrhythmias, of left, right and total heart failure, aortic stenosis, aortic regurgitation, stenosis and regurgitation of the mitral and tricuspid valves, and of congenital heart diseases. Coronary artery disease, pericardial disease, and pathophysiological mechanisms of vascular disease – atherosclerosis in particular, mechanisms of idiopathic and secondary hypertension, and mechanisms of shock. Pathophysiological hormonal factors in cardiac disease.

- Diseases of the adrenal medulla: Pathophysiology of peripheral catecholamine secretion, pheochromocytomas. Diseases of the adrenal cortex: Histology, cellular biology, biochemistry and hormonal production and secretion of the adrenal cortex. Selective pathophysiology of Cushing syndrome, Addison's disease, incidentalomas, primary and secondary hyperaldosteronism and hypoaldosteronism.
- Renal disease: Histology and cellular biology of the kidneys and of the regulation of renal function and of changes during renal diseases. Selective pathophysiology of acute and chronic glomerulonephritis, acute and chronic renal failure, nephrotic syndrome, lithiasis, renal cancer.
- Diseases of the gastrointestinal system and of the liver: General histology, physiology and pathophysiology of the oesophagus, the stomach, the common bile duct, the small and large intestine. Histology, cellular biology, circulation and dysfunction of the hepatocyte, portal hypertension. Selective pathophysiology of oesophageal achalasia, stomach and duodenal ulcer, gastroparesis, diseases of the gall bladder, diseases and inflammations of the small intestine, irritable bowel syndrome, diverticulitis. Selective pathophysiology of hepatic diseases, such as acute or chronic hepatitis, cirrhosis and its systemic complications, hepatic cancer.
- Exocrine pancreas: Pathophysiological mechanisms of acute and chronic pancreatitis, pancreatic insufficiency and pancreatic cancer. Endocrine pancreas: Histology and cellular biology of endocrine pancreas. Hormonal regulation and hormonal disorders in underlying diseases of the endocrine component. Hormonal regulation and hormonal disorders in underlying diseases of the endocrine component. Pathophysiology of diabetes mellitus and other pathological entities, such as insulinoma, glucagonoma, somatostatinoma.
- Diseases of the parathyroid glands and of calcium homeostasis: Histology and cellular biology of parathyroid glands, regulation of the hormonal secretion and disorders. Pathophysiology of primary and secondary parahyperthyroidism, familial hypocalciuric hypercalcaemia, malignant hypercalcaemia, myelomatous thyroid cancer, osteomalacia. Pathophysiology of the onset and establishment of osteoporosis.
- Diseases of the hypothalamus and the pituitary gland: Histology and cellular biology, hormonal actions and clinical manifestations with underlying disorders of the hypothalamus and the pituitary gland. Explanation of the particularities of pituitary embryology for the better understanding of the genetic and congenital element of the diseases. Selective pathophysiology of the types of the pituitary adenomas, hypopituitarism, obesity, diabetes insipidus, syndrome of inappropriate antidiuretic hormone secretion (SIADH).
- Diseases of the thyroid gland: Histology, cellular biology, normal and pathological secretion of the thyroid. Selective pathophysiology of hyperthyroidism, types of hyperthyroidism (Graves disease), hypothyroidism, thyroiditis (Hashimoto), bronchocele, nodules and neoplasms.
- Diseases of the male and female reproductory system: Histology, cellular biology and hormonal secretions of the two systems. Selective pathophysiology of disorders of the ovaries and of the menstrual cycle, uterus diseases, pregnancy and lactation. Male and female hypofertility, prostate hyperplasia, etc.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

Delivery	Face to Face

Use of Information and Communication Technology (ICT)	Open e-class platform
Teaching Organization	***Activity*** / ***Semester Workload*** Lectures: 120 Total: 120
Student Assessment	• Written exam (100%)

(5) SUGGESTED READING

- *Suggested Reading:*

- *Χανιώτης Φ, Χανιώτης Δ. Νοσολογία – Παθολογία. Αθήνα: Εκδόσεις Λίτσας, 2002. 2. Epstein O, Perkin GD, de Bono DP, Cookson G. Κλινική Εξέταση. Ιατρικές Εκδόσεις Λίτσας, Αθήνα 2004.*
- *3. Fauci A, et al. Harrison's Principles of Internal Medicine. 18th edition. N.Y.: The McGraw-Hill Companies Inc., 2011.*
- *4. Hope RA, et al. Oxford Handbook Κλινικής Ιατρικής. Ιατρικές Εκδόσεις Λίτσας, Αθήνα 2011.*
- *5. Kumar P, Clark M. Παθολογία (2 τόμοι). Αθήνα: Ιατρικές Εκδόσεις Λίτσας, Αθήνα 2007.*
- *6. McPhee S, Canong W. Pathophysiology of disease: An introduction to Clinical Medicine. 6th edition. N.Y.: The McGraw-Hill Companies Inc, 2009.*
- *7. McPhee S, Papadakis M. Current Medical Diagnosis & Treatment 2009. 48th International edition. N.Y.: The McGraw-Hill Companies Inc, 2008.*
- *Runge MS, Greganti MA. F. Netter Παθολογία. 1η Έκδοση. Εκδόσεις ΠΧ Πασχαλίδης,2011.*
- *Zalourof M. Έγχρωμος Άτλας - Τα Κλινικά Σημεία στην Παθολογία. Εκδόσεις ΠΧ Πασχαλίδης, 2005.*

MODULE OUTLINE of 'ORTHOPAEDICS'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULE CODE	Π1-2050	**SEMESTER**	**2th**
MODULE TITLE	ORTHOPAEDICS		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures / Theoretical	3	5
Total	3	5

MODULE TYPE	General Core Course
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE	Greek
MODULE SUITABLE for ERASMUS STUDENTS	
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The aim of the course is for the students to understand the basic concepts of pathology and trauma of the musculoskeletal system and of the organs and systems that affect its function, to acquire skills related to the evaluation of the orthopaedic patient and the associated therapeutic intervention, in order to contribute to the best possible outcome of the conservative or operative orthopaedic treatment, and also to the prevention of the most frequent diseases of the musculoskeletal system.

After completing the course the students should be able to:

- Recognise the main signs and symptoms of a musculoskeletal disease and the other possible systems that may be involved in the said disease.
- Be aware of the main signs and symptoms of a musculoskeletal injury and recognise it in various imaging methods.
- Utilise the proper clinical examination and assessment techniques.
- Participate in a differential diagnosis.
- Be aware of the therapeutic options for every disease/injury of the musculoskeletal system.
- Be aware of the main therapeutic protocols that are applied to musculoskeletal disorders for prevention and treatment (conservative or operative).
- Participate in the rehabilitation of the patient in a hospital unit.

General Competences - Learning Outcomes

- Individual work
- Teamwork
- Decision making
- Searching, analyzing and composing of data and information using the appropriate technological means

(3) MODULE CONTENT

- **Introduction – Musculoskeletal system.** Anatomy – Pathology – Kinesiology. History of orthopaedics, terminology, orthopaedic practice, subspecialties, materials for orthopaedics. Approach to the orthopaedic patient: a) diagnosis, b) prognosis, c) treatment.
- **Genetic and congenital diseases.** Down syndrome, neurofibromatosis, Klinefelter syndrome, Ehlers–Danlos syndrome, impact of foetal environment, osteogenesis imperfecta, achondroplasia, multiple exostoses, radioulnar synostosis, congenital aplasias, congenital elevation of the scapula, congenital differentiation of the shape of the fingers, Klippel–Feil syndrome, congenital torticollis. Brief description of the definition, the prevalence, the clinical manifestation, the diagnosis and differential diagnosis, and the protocols for prevention and treatment.
- **Genetic and congenital diseases.** Congenital hip dislocation. Congenital equinovarus, flatfoot, congenital disorders of the spine – kyphosis, lordosis, scoliosis. Brief description of the definition, the prevalence, the clinical manifestation, the diagnosis and the differential diagnosis and of the protocols for prevention and treatment.
- **Metabolic diseases.** Bone, bone metabolism, components of the regulation of the bone metabolism. Bone metabolism and growth. Diseases that lead to the failure of the structure of the bone tissue: osteoporosis, osteomalachia, Paget disease. Clinical manifestation, diagnosis,

treatment.

- **Inflammation in orthopaedics.** Definition, ways of dispersal, classification, factors, clinical manifestation, diagnosis. Osteomyelitis (description of the various types and classification with emphasis on the clinical manifestation, diagnosis, therapeutic goals and treatment). Tuberculosis.
- **Inflammatory diseases**. Rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, gout. Description of the clinical manifestation, the diagnosis, the specialised laboratory and imaging diagnostic methods, protocols of intervention.
- **Osteonecrosis**. Definition, traumatic/non-traumatic osteonecrosis, pathology, stages, therapeutic intervention. Osteonecrosis in the child/teenager (Legg–Calvé–Perthes osteochondritis, fissuring osteochondritis, osteochondritis of the tibial tuberosity, osteochondritis of the heel, Scheuermann disease). Osteochondritis in the adult (osteonecrosis of the lunate/Kienbock disease, osteonecrosis of the femoral head, dysbaric osteonecrosis, secondary osteonecrosis).
- **Osteoarthritis**. Definition, causative and risk factors, pathology, frequency and usual manifestations, clinical picture, diagnostic methods, treatment. Description of clinical picture, imaging methods and treatment of the most frequent types that present in clinical practice.
- **Neuromuscular diseases**. Introduction and gross description of the nervous system. Patient history, clinical examination and evaluation, laboratory and imaging techniques, principles of therapeutic treatment. Poliomyelitis. Cerebral palsy (causative factors, classification, diagnosis based on the age of the patient during examination, therapeutic goals, conservative treatment, operative treatment per region, physiotherapy and occupational therapy protocols).
- **Neuromuscular diseases.** Spastic palsy in the adult. Friedreich ataxia. Spinal cord lesions (clinical picture relative to the level of the lesion, aetiology). Spina bifida (clinical picture, classification, treatment). Reference to motor neuron diseases.
- **Peripheral neuropathies.** Mononeuropathies, multiple neuropathies, polyneuropathies. Seddon & Sunderland classification of neural lesions, clinical picture, clinical tests, assessment of patient, therapeutic goals. Detailed description of peripheral neuropathies per region. Lesions of plexuses and peripheral nerves (cervical, brachial, lumbar plexus and of the main final rami, with emphasis on the clinical picture and the assessment, as well as the treatment).
- **Peripheral neuropathies.** Syndromes of nerve entrapment. Syndrome of thoracic outlet, entrapment of suprascapular nerve, syndromes of entrapment of the ulnar nerve (cubital tunnel, Guyon's canal), entrapment of the radial nerve (dorsal interosseous nerve, paresis), syndromes of entrapment of the median nerve (carpal tunnel syndrome, syndrome of pronator teres, entrapment of anterior interosseous nerve), tarsal tunnel syndrome, femoral paraesthesia.
- **Pain**. Perception of pain, acute, chronic, complex.
- **Compartment syndromes.** Definition, clinical picture, treatment. Syndrome of anterior leg compartment, Volkmann syndrome.
- **Fractures (#).** Definition. Classifications. Mechanism, process and timetable of porosis. Diagnosis, clinical picture, imaging methods. General guidelines for treatment. A) Reduction: closed reduction (with manipulation, skin or skeletal traction), open reduction (indications). B) Immobilisation, preservation of reduction: traction, braces, casts, callipers, functional braces, external fixation, internal fixation (indications, advantages, disadvantages, complications). C) Exercise, functional rehabilitation.
- **Fractures (#).** Open fractures. Classification. Treatment. Complications of fractures: Immediate,

further, gereralised. Fatigue fractures: Definition, usual locations, diagnosis, treatment. Fractures in the child: Particularities of the growing skeleton, description of the structure of the epiphysis. Salter–Harris classification, treatment principles.

- **Painful syndromes of the spine.** Discopathy. Gross description of the anatomy of the intervertebral disc and of the pathology of the disc and the spine ligaments. **Low back pain/sciatica.** Definitions, terminology, frequency of manifestation, clinical picture, assessment of patient, clinical tests, imaging methods, conservative or operative treatment, rehabilitation protocols. **Spondylolisthesis**. Definition, pathology, classification/stages, treatment. **Prolapse in the cervical spine**. Clinical picture, imaging methods, diagnosis, treatment. **Ossification of the posterior longitudinal ligament** and **spinal stenosis**.
- **Spinal injuries.** Classification, mechanisms, neurological assessment, clinical picture, treatment principles relative to manifestation or not of neural lesion and location of injury. Injuries of the spine per region, with emphasis on clinical/laboratory tests, assessment and treatment. **Cervical spine injuries**. Atlantooccipital dislocation, #C1, #C2, # of mid – lower cervical spine, whiplash injury. Injuries of the thoracic spine. Compression, burst, sphenoid fractures, fractures/dislocations, “safety belt” fractures.
- **Painful syndromes of the upper extremity**. Per region: Gross anatomical description, clinical picture, diagnostic methods, therapeutic treatment and rehabilitation of disorders of the upper extremity. **Shoulder girdle**: Anatomy of the shoulder joint. Impingement syndrome. Acute calcifying myositis. Tendinitis of the shoulder rotator cuff. Tear of the rotator cuff. Injuries of the glenoid labrum (SLAP & Bankart), biceps brachii tendinitis. Shoulder instability. Frozen shoulder. **Elbow**: Bursitis. Epicondylitis (tennis & golfer’s elbow). Tendinitis of the distal insertion of the biceps brachii. **Wrist**: De Quervain tenosynovitis. Trigger finger (stenosing tenosynovitis), flexor/extensor tendinitis (overuse). Wrist nodules. DuPuytren syndrome (shortening of the palmar aponeurosis).
- **Injuries of the upper extremity**. Fractures. Muscle and tendon injuries. Clinical picture, diagnosis, classification, treatment-rehabilitation. **Shoulder girdle**: # clavicle, # scapula, #/dislocation of shoulder, # arm. **Elbow**: # distal end of arm in children and adults, # radius, # olecranon. **Forearm**: fractures of the forearm bones (one or both). # Monteggia. # Galeazzi.
- **Injuries of the upper extremity. Forearm and wrist.** Fractures of the distal end of the forearm (# Coles, # Smith, # Barton). **Wrist and hand.** Wrist sprain, # of a wrist bone (# navicular, # capitate, # hamate). Injury of the triangular fibrocartilage complex. Instability of the wrist (VISI/DISI). Fractures of the metacarpal bones (# of neck, shaft, base). Fractures of the thumb (Rolando’s, Bennet’s). Fractures of the phalanges (types, treatment, fracture of the distal phalange). Injuries of joints (fractures/dislocation of carpometacarpal joints, metacarpophalangeal joints and phalangophalangeal joints, injuries of collateral ligaments).
- **Injuries of the upper extremity.** Injuries of flexors/extensors. Amputations and reattachments.
- **Painful syndromes of the lower extremity**. Per region: Gross anatomical description, rehabilitation of the injuries of the lower extremity. **Hip**. Bursitis. Tronchanteritis. **Knee**. Baker cyst. Bursitis. Syndrome of patellofemoral overloading, chondromalacia patellae. Plica syndrome of the knee. **Ankle and foot**. Achilles tendinitis. Plantar aponeurositis. Peroneal tendinitis. Metatarsalgia. Hallux valgus. Hallux rigidus. Mallet toes. Crossover small toe.
- **Injuries of the lower extremity**. Fractures. Muscle and tendon injuries. Clinical picture, diagnosis,

classification, treatment – rehabilitation. **Pelvis**. Isolated fractures with the pelvic ring intact, # with tear of the pelvic #, # of acetabulum. **Hip joint**. Hip dislocation (anterior/posterior). Femoral neck fractures. Transtrochanteric and subtrochanteric fractures. Femoral shaft fractures. Knee. Supracondylar femoral fractures. Femoral condyles fractures. Epiphysiolisthesis of femoral condyles.

- **Injuries of the lower extremity**. **Knee**. Patellar fractures. Tear of extensor mechanism. Detachment of tibial tuberosity. Dislocation of the patella. Injuries of collateral patellar ligaments. Quadriceps tears. Menisci tears. Injuries of the anterior and/or posterior cruciate ligament. Injuries of the lateral ligaments of the knee. Fractures of the proximal end of the tibia (# plateau). Tibial shaft fractures. Peroneal fractures. **Ankle and foot**. Ankle sprains. Injuries of the lateral ligaments of the ankle. Injuries of the distal tibioperoneal joint. Fractures of the distal end of the tibia. Fracture of one malleolus, bimalleolus, trimalleolus. Fractures of the tarsal bones (fracture of the talus, the heel, the navicular). Fractures of the metatarsal bones. Fractures of the phalanges. Achilles tendon tear.
- **Neoplasms in orthopaedics**. Clinical picture, history, imaging methods, laboratory tests, principles of treatment. **Benign tumours**. Nonossifying fibroma. Osteoid osteoma. Osteoblastoma. Chondroma (enchondroma/ecchondroma). Osteochondroma. Aneurysmal cyst. Simple solitary cyst. Gigantocytic tumour. **Malignant neoplasms**. Classification based on tissue. Stages of neoplasms. Osteosarcoma. Fibrosarcoma. Chondrosarcoma. Ewing's sarcoma.
- Presentation of case studies with musculoskeletal disorders, simulation of diagnosis, clinical examination of patient, diagnostic and treatment tools.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity a**	**Semester workload**
	Interactive Lectures	150
	Practice	
	Course Total	150
STUDENT ASSESSMENT	Final written examination (100%).	

(5) RECOMMENTED READING

Suggested reading:

- *Καμμάς Α. Εισαγωγή στην Ορθοπεδική. Αθήνα: Εκδόσεις Α. Καμμάς, 1999.*
- *Συμεωνίδης Π. Ορθοπεδική. Κακώσεις και Παθήσεις του Μυοσκελετικού Συστήματος. Θεσσαλονίκη: University Studio Press, 1999.*
- *Χαρτοφυλακίδης Γ. Θέματα Ορθοπεδικής και Τραυματολογίας. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε, 1990.*
- *Appley AG. Solomon L. Σύγχρονη Ορθοπεδική και Τραυματολογία. Αθήνα: Εκδόσεις Πασχαλίδη, 2007.*
- *Brotzman S. Wilk E. Kevin. Ορθοπαιδική Αποκατάσταση στην Κλινική Πράξη. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2007.*
- *Evans CR. Instant Access to Orthopedic Physical Assessment. MO:Mosby, 2009. 7. Fu HF. Master techniques in orthopaedic Surgery: Sports Medicine. NY: Lippincott Williams & Wilkins, 2010.*
- *Huvos A. Bone tumors. Diagnosis, Treatment, Prognosis. Saunders, 1990.*
- *Leversedge JF, Boyer IM, Goldfarb AC. A Pocketbook Manual of Hand and Upper Extremity Anatomy: Primus Manus. NY: Lippincott Williams & Wilkins, 2010.*
- *Magee JD. Orthopedic Physical Assessment. Saunders, 2007.*
- *McRae R. Clinical Orthopaedic Examination. Αθήνα: Κωνσταντάρας Ιατρικές Εκδόσεις, 2010.*
- *Norkin C, White DJ. Measurement of Joint Motion: A Guide to Goniometry. Davis Company, 2009.*
- *Russell Stephen. Κλινική εκτίμηση της βλάβης των περιφερικών νεύρων. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.*
- *Thompson CJ. Netter's Concise Orthopaedic Anatomy. Saunders, 2009.*
- *Weinstein SL, Buckwalter JA. Turek's Orthopaedics. Principles and their application. JB. Lippincott, 2005.*
- *Wiss D. Master Techniques in Orthopaedic Surgery: Fractures, NY: Lippincott Williams & Wilkins, 2012*

Module Outline of 'Electrophysical Agents in Physiotherapy'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-2060	**Semester**	2nd
Module Title	Electrophysical Agents in Physiotherapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	3	**6**
Laboratory (lab training)	2	
Total	5	

Module Type	Specialty Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The module of Electrophysical Agents in Physiotherapy aims to teach and apply of Physical and Electrophysical agents in Physiotherapy Clinical Practice. The aim of the module is for the students to understand the principles of Biophysics of Electrophysical Agents, as wells as the neurophysiological response of the organism to the biological effects. After having successfully completed the module, students: • Will have gained the fundamental knowledge for the indications and contraindications for use, the biological and therapeutic effects from the Electrophysical Agents • Will have gained the necessary skills to evaluate their patient and apply the appropriate therapy regimes and protocols for electrophysiological application • Will be able to inform the patient about the purpose of each Electrophysical Agent, the benefits, the expected therapeutic effect and the potential risks
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Group work • Plan and management of physiotherapy interventions

(3) MODULE CONTENT

Theory Content

- ***Introduction – Fundamental Principles of Biophysics and Physiology***
- ***Changing of the Thermal Setting & Effects of Biological Tissues***: the physical effects of heat, heart transfer, homeothermy, physiological effects of heat changes.
- ***Physical Agents Classification*****:** (Superficial and Deep Thermotherapy, Ultrasound, Electromagnetic fields, Laser, etc.) depending on their action: analgesia, spasmolytic, anti-oedematic, reduction of joint stiffness, anti-inflammatory etc. Comparison of their effectiveness. Criteria for selection and combination.
- ***Therapeutic Conduction Heating:*** Effects of conducting heating, Hot packs, Paraffin wax bath, Hydrotherapy, Whirlpool baths, Balneotherapy, Radiant Heat, Luminous/Non-Luminous Generator of Infrared Radiation, Sensory examination, Heat/Cold
- ***Cryotherapy:*** Physiological responses after temperature decrease, Cold therapy agents and devices, Indications and Contraindications
- ***Thermotherapy versus Cryotherapy:*** Comparison of the physiological effects on tissues. Indications for the application of thermotherapy or cryotherapy at various stages of diseases and syndromes. Combination of the two therapeutic methods.
- ***Ultrasound:*** Biophysics of ultrasound. Effect of ultrasound on tissues. Indications and Contraindications, Application of shockwave therapy. Analysis of application parameters. Application methods. Phonophoresis.
- ***Applications of Ultrasound Waves:*** Shockwave therapy, Longwave Ultrasound, Ultrasonography
- ***Laser:*** Physics of Laser. Technical characteristics, Indications and Contraindications, Analysis of Parameters, Biological-Therapeutic Effects.

- ***Pulsed & Continuous Shortwave Therapy/ Shortwave diathermy:*** Physics of Shortwave, Technical Characteristics, Indications and Contraindications, Analysis of Parameters, Biological-Therapeutic Effects.
- ***Electromagnetic Fields:*** Physics of Electromagnetic Fields. Technical Characteristics, Indications and Contraindications, Analysis of Parameters, Biological-Therapeutic Effects.
- ***Planning of therapeutic intervention with Electrophysical Agents:*** Primary and secondary action of physical agents. Sequence of application. Therapeutic protocols in acute, subacute and chronic pathological conditions.
- ***Low Intensity Therapy / New Technologies / Research Evidence*****:** Presentation of newer scientific data and newer technologies in Electrophysical Agents.

Laboratory Content

- Introductory part, presentation of technical equipment, guidelines, preventive measures, risk management, equipment calibration.
- Training for the sensory examination, Application of therapeutic conduction heating, hot packs
- Application of therapeutic conduction heating, methods of application of paraffin wax baths, infrared radiation.
- Hydrotherapy-Whirlpool Bath, Contrast Baths.
- Clinical Applications of Cryotherapy.
- Clinical Applications of Therapeutic Ultrasound – Choice of Parameters
- Clinical Applications of Laser – Choice of Parameters – Safety Measures.
- Clinical Applications of Electromagnetic Fields.
- Combination of Electrophysical Agents.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	110
	Laboratory Training	60
	Workshops	10
	Total	180
STUDENT ASSESSMENT	**Theory** Final written examination (50%), which may include: ✓ Multiple choice questions ✓ Short-answer or open-ended questions, analysis of roles and interest parts in a brief case study ✓ Solving problems relating quantitative data of a working time and cost ✓ Comparative evaluation of theory elements	

	Laboratory (50%) - Continuous assessment of students throughout the semester with practical exercises or questions about what subjects they studied. - Final examination of all the modules taught.

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Γιόκαρης Π. Θεραπευτικά Σχήματα - Κλινική Ηλεκτροθεραπεία. Αθήνα: Εκδόσεις Γράμμα Α.Ε., 2007.*
  - *Μπάκας Ε. Φυσική Ιατρική και Αποκατάσταση. Τόμος 1ος. Αθήνα: Ιατρικές Εκδόσεις Ζήτα, 1995.*
  - *Φραγκοράπτης Ε. Εφαρμοσμένη Ηλεκτροθεραπεία - Θεωρία και Πράξη Μεθόδων Ηλεκτροθεραπείας. Θεσσαλονίκη: Εκδόσεις Πετρούλα , 1994.*
  - *Mackler L, Robinson A. Clinical Electrophysiology: Electrotherapy and Electrophysiologic Testing. Third Edition. Baltimore, MD: Wolters Kluwer - Lippincott Williams & Wilkins, 2008.*
  - *Nelson RM, Currier DP, Hayes KW. Clinical Electrotherapy. Third Edition. USA: Apleton & Lange, 1999.*
  - *Robertson V, Ward A, Low J, et al. Electrotherapy Explained. Principles and Practice. 4th Edition. Edinburgh: Butterworth¬ Heinemann, 2006.*
  - *Robertson V, Ward A, Low J, et al. Ηλεκτροθεραπεία - Βασικές Αρχές και Πρακτική Εφαρμογή. 4η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.*
  - *Watson T. Ηλεκτροθεραπεία – Τεκμηριωμένη Πρακτική. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2011.*
  - *William P. Therapeutics Modalities in Rehabilitation. 4th Edition. Columbus, OH: McGraw-Hill Global Education Holdings, 2011.*
  - *Ward A. Biophysical bases of electrotherapy. Mount Waverley: Excel Biomedical Publication.2004*
  - *Σιανούδης Α.Ι. Βιοφυσική θέματα ιατρικής φυσικής Εκδόσεις Λύχνος 2009*
  - *Laurie Lundy- Ekman Neuroscience Fundamentals for Rehabilitation Third edition Saunders Elsevier*

3rd SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	NEUROLOGY	GBM	П1-3010	3	150			3	150	150	5
2	KINESIOTHERAPY	SM	П1-3020	3	90	2	90	5	180	180	6
3	MASSAGE TECHNIQUES	SM	П1-3030	3	90	2	60	5	150	150	5
4	CLINICAL ELECTROTHERAPY	SM	П1-3040	3	90	2	90	5	180	180	6
5	CLINICAL ERGOPHYSIOLOGY	SM	П1-3050	3	150			3	150	150	5
	ELECTIVE MODULES										
6	RHEUMATOLOGY	EM	П1-3A10	2	90			2	90	90	3
	PAEDIATRICS	EM	П1-3B10	2	90			2	90	90	3
TOTAL				**17**	**660**	**6**	**240**	**23**	**900**	**900**	**30**

Module Outline of 'Neurology'

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-3010	**Semester**	3rd
Module Title	Neurology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (lectures)	3	**5**

Module Type	General Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English) undertaking an essay
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
After the completion of the module, students: • Will have acquire basic knowledge in Topical Neurology. • Will be able to carry out neurological clinical examination and interpret the findings by linking them to specific anatomical areas and functional systems. • Will be able to recognize the neurological disorder and the underling pathophysiology. • Will be able to develop clinical and differential-diagnostic thinking on a specific clinical neurological symptomatology. • Will have acquire UpToDate and well-established knowledge of understanding the most important neurological diseases in terms of the epidemiology, the etiology, the clinical picture, the diagnosis and the therapy. • Will have acquire basic knowledge of the UpToDate diagnostic methods in Neurology. • Will have acquire basic knowledge of the UpToDate therapeutic methods in Neurology. After the completion of the module, they will be able to understand the type and the severity of the neurological deficit of the patients, set the appropriate therapeutic goals and plan the appropriate therapeutic intervention. They will be able to participate in interdisciplinary working groups to better manage patient problems. They will have acquired general principles and skills in dealing with neurological patients in terms of patient safety, respect for their personality and diversity, and safeguarding personal data. They will be familiar with the mechanisms of searching for new scientific knowledge, evaluating new information and applying innovative therapeutic methods.
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Group work-participation in interdisciplinary groups • Respect for diversity and multiculturalism • Demonstration of social, professional and ethical responsibility and sensibility on gender issues

(3) MODULE CONTENT

• **General Part** • General principles of Anatomy of Nervous System (Brain, Spinal Cord, Peripheral Nervous System) • General Principles of Physiology-Pathophysiology of Nervous System • Motor system: Centres-pathways-connections-Functional systems (Pyramidal system, Extrapyramidal system) • Somatosensory system: Centres-pathways-connections-Sensory types (exteroceptive, proprioceptive) • General symptomatology in damage per level of nervous system

- Disorders of symbolic and mental functions
- Anatomical-clinical associations
- Pathophysiological-clinical associations.
- **Nosology**: Epidemiology, Etiology, Clinical picture, Diagnosis and Therapy of most important neurological diseases.
- Stroke
- Demyelinating diseases
- Degenerative diseases (Alzheimer d., Parkinson d., Motor Neuron Disease, Huntington's Chorea, Cerebellar Ataxia)
- Peripheral Nervous System Diseases (peripheral nerve diseases, plexopathies, ganglionopathies, radiculopathy)
- Myopathies
- Neuromuscular junction disease
- Nervous System Tumors
- Nervous System Infections
- Toxic Disorders of the Nervous System
- Traumatic Brain Injuries
- Spinal Cord Injuries
- Autonomic Nervous Systems Disorders
- Epilepsy
- Dizziness
- Headache
- Systemic and Metabolic disorders
- Pediatric Neurology -Neonatal Neurological Examination
- Congenital anomalies
- **Basic diagnostic examinations in Neurology**: indications, limitations and outcome evaluation.
- Neuroimaging methods (Computed Tomography, Magnetic Resonance Imaging, angiography)
- Functional Neuroimaging methods (fMRI, SPECT, PET)
- Neurophysiological examinations (electroneurography, electromyography, electroencephalography, evoked potential, transcranial magnetic stimulation)
- Doppler ultrasonography of cerebral vessels
- Lumbar puncture-cerebrospinal fluid examination
- Neuroimmunology
- Neurogenetics

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	
	Posting and distribution of literature	

	Interactive teaching	
	Guest speakers approved by the Physiotherapy Department	
	Information relating to scientific activity (conferences, meetings)	
	Total	***150***
STUDENT ASSESSMENT	Final written examination (100%) of all module content, through : ✓ Multiple choice questions ✓ True-or-false questions ✓ Gap-filling ✓ Short answer questions ✓ Open ended question	

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Λογοθέτη νευρολογία, 5η έκδοση, University Studio Press 2016*
  - *Τάσκος νευρολογία, 3η έκδοση, University Studio Press 2016*
  - *Brust Current σύγχρονη νευρολογία 1η ελληνική έκδοση, Broken Hill publishers, 2016*
  - *Mumenthaler neurology, Thieme 2003*
  - *Adams and Victors principles of neurology, 10th edition, Mc Graw Hill, 2014*
  - *Bradley's neurology in clinical practice, 7th edition, Elsevier, 2016*
- *Related scientific journals:*
  - *Neurology*
  - *Muscle and nerve*
  - *Archives of Neurology*
  - *European Journal of Neurology*
  - *Journal of Neurology*
- *Recommended web sites*

emedicine.medscape.com The eMedicine point-of-care clinical reference features up-to-date, searchable, peer-reviewed medical articles organized in specialty-focused textbooks
https://www.ncbi.nlm.nih.gov/pubmed PubMed comprises more than 28 million citations for biomedical literature from MEDLINE, life science journals, and online books
https://www.aan.com American Academy of Neurology
https://www.ean.org/ EFNA- European Federation of Neurological Associations
www.enee.gr/el/ Ελληνική Νευρολογική Εταιρεία

Module Outline of 'Kinesiotherapy'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULE CODE	Π1-3020	**SEMESTER**	**1st**
MODULE TITLE	KINESIOTHERAPY		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Theoretical (lectures)	3	
Practical (laboratory exercises and clinical education)	2	
Total	5	6

MODULE TYPE	Specialty Course
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE	Greek
MODULE SUITABLE for ERASMUS STUDENTS	YES
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The aim of the course is the detailed analysis of the factors that influence motion and underlie the planning of kinesiotherapy and exercise programmes. The basic kinesiotherapy principles and the types of motion are taught, together with the relationship between gravity, resting muscle length, speed and motion. The principles of planning programmes of passive, assisted and active exercise are developed with the aim of conserving or increasing the mobility and the range of motion, as well as improving the strength, power, endurance and elasticity of the muscle system. In particular, issues such as the concept of proprioception, kinaesthesia, and the role of neuromuscular coordination in skill acquisition are explored. The aim is for the students to acquire skills for the organisation and application of preventive and therapeutic programmes through motion, with emphasis on relaxation, stretching and resistance exercises for the preservation or improvement of the function of the muscular system.

After completing the course the students should be able to:

- Comprehend in detail the methodology of organising and planning kinesiotherapy and exercise programmes for the conservation or improvement of muscle function, with the goal of preserving and rehabilitating dysfunctions of the musculoskeletal system.
- Apply the basic principles of planning programmes for the improvement of elasticity, strength and endurance of the muscular system.
- Apply relaxation programmes.
- Plan and apply appropriate kinesiotherapy and exercise programmes with the goal of improving the neuromuscular coordination and developing new skills or preserving already acquired ones.

General Competences - Learning Outcomes

- Searching, analyzing and composing of data and information using the appropriate technological means.
- Adapting to new conditions
- Decision making
- Individual work
- Teamwork
- Working in interdisciplinary environment
- Planning and management of physiotherapeutic interventions

(3) MODULE CONTENT

Theoretical Part

- Factors that influence motion. Analysis of the role of strength, muscle tone, elasticity and endurance. Influence of neuromuscular coordination on the execution of motion.
- Analysis of the mode of the assessment of motion based on the SOAP model. Subjective – assessment – assessment and planning of programme.

- Planning to improve motion. Goals for desirable functional outcomes. Checking of factors that affect function. Applications for the therapeutic plan.
- Analysis of the goals of therapeutic exercise. Prevention of dysfunction and improvement or conservation of strength, mobility, balance and functional skills.
- Analysis of factors that affect muscle strength. The effect of muscle unit firing on muscle output and of muscle contraction on the muscle tension capability.
- Ways to increase muscle strength: a) muscle hypertrophy, analysis of causative factors, b) hyperplasia, c) muscle unit recruitment.
- Effect of motion on the human body. Discrimination between active and passive motion. Analysis of the effect of active and passive motion. Types and characteristics of motion: a) isometric, b) isotonic, c) isokinetic.
- Analysis of the range of motion. Discrimination between active, passive and assisted range of motion. Modes of assessing the range of motion. Goniometry.
- Resistance exercises. Description of resistance exercises, modes of application and analysis of outcomes, contraindications. Type and characteristics of resistance exercises: a) isometric, b) isotonic, c) isokinetic.
- Length tension – velocity tension relationship. Effect on the increase of muscle strength, power and endurance.
- Relaxation: definition and relaxation principles. Analysis and method principles for general relaxation.
- Effect of motion on relaxation. Physiotherapeutic modes for relaxation. Autogenic relaxation.
- Stretching. Analysis of the therapeutic technique of stretching, influencing factors. Indications – goals. Effects, outcomes of stretching programmes, applications for the prevention and for physiotherapeutic rehabilitation.

Practical Part

- Passive motion. Starting positions – grips. Applications for the joints of the upper and lower extremity.
- Assessment of motion and of range of motion. Analysis of goniometry methods. Measurements. Applications.
- Active motion. Motion in relation to gravity. Open – closed kinetic chain.
- Assisted exercise. Assessment of factors relative to the effect of gravity on the execution of motion.
- Simple active exercise. Applications for the muscle systems of the upper and lower extremity.
- Planning of exercise programmes with the goal of conserving muscle strength.
- Resistance exercises. Technical points of application. Muscle strength programmes. Assessment. Application.
- Planning and application of programmes to conserve and improve muscle endurance.
- Planning of rehabilitation, proprioception and skill acquisition programmes. Applications. Assessment.
- Relaxation, general. Psychogenic approach. Mental and physical methods. Exercise – applications. Assessment.
- Relaxation, local. Pain – exercise. Planning and application of programmes. Assessment.

- Elasticity. Checking the elasticity of contractile and non-contractile structures.
- Planning of exercise programmes for the conservation and improvement of the elasticity of the muscle systems of the trunk, the upper and the lower extremity.
- Exercises – stretching programmes. Self stretching. Planning, application and assessment of stretching programmes with active movements.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity a**	**Semester workload**
	Theoretical part Presentations and lectures using audiovisual media	70
	Theoretical part Using e-class to post and distribute scientific articles, lectures, useful links, questionnaires, course attendance information, etc.	10
	Theoretical part Visiting speakers after approval by the Department of Physiotherapy.	10
	Laboratory Part Practice of the students in the organization and implementation of passive and active movement programs with specific therapeutic goal	30
	Laboratory Part Students practicing on theirselves active exercise programs. Evaluation of application results. Adaptation and redesign of the exercise.	30
	Laboratory Part Organizing kinesiotherapy programs applying the methods taught and aiming to	30

	prevention.	
	Course Total	180
STUDENT ASSESSMENT	Theoretical part Final written examination (50%) which can include: • Multiple choice questions • Short answer or development questions • Comparative evaluation of theory elements Practical part (50%) • The laboratory part has student mid-term evaluations of laboratory unit applications • Final examination of all the material taught.	

(5) RECOMMENTED READING

Suggested Reading:

- *Allard P. Strokes I. Blanch JP. Three Dimensional Analysis of Human Movement. U.S.A: Human Kinetics, 1995.*
- *Alter M. Science of flexibility. 3nd edition. USA: Human Kinetics, 2004.*
- *Bates A, Hanson N. Aquatic exercise therapy. Philadelphia: W.B. Saunders Company, 1996.*
- *Butler D. The sensitive nervous system. 1st Edition. Australia: Noigroup, 2006.*
- *Campion MR. Hydrotherapy. Principles and practice. United Kingdom: Butterworth- Heinemann, 1998.*
- *Donatelli R, et al. Physical therapy of the shoulder. 5th Edition. New York: Churchill Livingstone, 2011.*
- *Dvir Z. Isokinetics, muscle testing, interpretation and clinical applications. 2nd Editon. Edinburg: Churchill Livingstone, 2004.*
- *Enoka R. Neuromechanical basis of kinesiology. 4th Edition. USA.: Human Kinetics, 2008.*
- *Francis E. Stretching Therapy: A Comprehensive Guide to Individual & Assisted Stretching. 1st edition. Indianapolis: Blue River Press, 2013.*
- *Kenyon K. Kenyon J. The Physiotherapist's Pocketbook: Essential Facts at Your Fingertips. 2nd edition. New York: Churchill Livingstone, 2009.*
- *Kisner C. Θεραπευτικές Ασκήσεις . Αθήνα: Ιατρικές & Επιστημονικές Εκδόσεις ΣΙΩΚΗΣ, 2003.*
- *Laban R. The Mastery of Movement. United Kingdom: Dance Books Publication, 2011.*
- *Levine P, Phillips M. Freedom from Pain: Discover Your Body's Power to Overcome Physical Pain. Colorado: Pap/Com, 2012.*
- *MacIntosh B. Gardiner P. Mc Comas A. Skeletal Muscle. Form and function. 2nd Edition. USA.: Human Kinetics, 2005.*
- *Payne R., Donaghy M. Payne's Handbook of Relaxation Techniques. A practical guide for the health care professional. 4th Edition. New York: Churchill Livingstone, 2010.*
- *Perrin D. Isokinetic exercise and assessment. USA.: Human Kinetics, 1996.*
- *Pitt-Brooke J, Reid H, Lockwood J, et al. Rehabilitation of movement. Theoretical basis of clinical practice. Philadelphia: W.B. Saunders Company, 1998.*
- *Ryf C, Weymann A. Εύρος κίνησης-ουδέτερη-ο-μέθοδος της Α.Ο. μέτρηση και τεκμηρίωση Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2004.*

- *Schoen J, Pearl L. Keep Calm and Stretch: 44 Stretching Exercises to Increase Flexibility Relieve Pain, Prevent Injury, and Stay Young! USA: Little Pearl Publishing, 2012.*
- *Snyder KT, Goodman C. Differential diagnosis in physical therapy. 4th Edition. Philadelphia: W.B. Saunders Company, 2007.*

- *Related scientific Journals:*
  - *Journal of American Kinesiotherapy Association*
  - *Physical Therapy*
  - *Kinesiotherapy*
  - *Clinical Kinesiology*

Module Outline of 'Massage Techniques'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-3030	**Semester**	**3rd**
Module Title	Massage Techniques		

Independent Teaching Activities	**Weekly Teaching Hours**	**Credits**
Lectures	2	
Workshop	1	
Laboratory	2	
Total	5	5

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The aim of the course is to educate students in the assessment and treatment of problems with the application of massage techniques. The students are taught the role and the contribution of the massage techniques to the improvement of dysfunctions of the skin, the fasciae, the musculotendinous unit, the peripheral circulatory and the lymphatic system. The teaching units focus on: a) an understanding of the physiological and biological effects of the various techniques, b) understanding of the basic application principles of the various techniques according to the international research evidence base, c) recognition of the indications and contraindications according to the disease and the therapeutic goals, d) practice in the development of selection criteria for the application of the proper techniques in diseases such as painful syndromes – local or generalised– circulatory problems in the upper or lower extremity, respiratory problems and psychogenic conditions. The students practise on special therapeutic schemas relative to the isolated or combined application of massage with physical agents and therapeutic exercise according to the planning of therapeutic protocols recorded in the international arthrography. After completing the course, the students should be able to: •Comprehend the beneficial effect of massage on the various systems. •Develop basic skills for the assessment and the selection criteria of the various techniques and to apply with competence and safety the assessment tests and the massage techniques. •Develop the necessary critical thinking for the application of therapeutic massage in combination with other physiotherapy modalities and methods. •Plan individualised interventions as well as a composite therapeutic programme with soft-tissue techniques. •Develop basic skills for the identification of indications and contraindications during the physiotherapeutic assessment and during the planning of the therapeutic schemas, according to international ethical and scientific guidelines.
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Teamwork

(3) MODULE CONTENT

Theoretical – Teaching Units

- Introduction to massage techniques: a) History of massage techniques, b) Basic application principles of classic massage techniques, c) Introduction to the therapeutic goals of massage.
- Description and analysis of the skin in relation to massage. Anatomical and functional skin components.
- Skin and nervous tissue. The concept of pain and its inhibition in relation to transcutaneous techniques. Evidence-based practice.
- Description and understanding of basic functions of the musculotendinous unit. a) Massage and musculotendinous system, b) Muscles, fasciae, muscle spasm, spasticity, trigger points, tender points, c) Indications and contraindications, d) Therapeutic results. Evidence-based practice.
- Description and understanding of the basic functions of the circulatory system: a) Massage and the circulatory system, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Techniques of classical massage: a) Technical points of application, palpation, b) Light stroke, deep stroke, kneading, c) Pressure, vibration, percussion.
- Special massage techniques: a) Deep transverse friction, b) Scar tissue massage, c) Functional massage, d) Indications and contraindications, e) Therapeutic results. Evidence-based practice.
- Connective tissue massage: a) Connective tissue massage techniques, b) Indications and contraindications, c) Therapeutic results, d) Evidence-based practice.
- Lymph massage: a) Techniques of lymph massage, b) Indications and contraindications, c) Therapeutic results. Evidence-based-practice.
- Reflex points massage. Correlation with acupuncture points. a) Techniques for the stimulation of reflex points, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Massage in sports. a) Effect of massage on sport activities, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Massage and psychogenic factors. a) Psychological effect of massage, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Massage and a) Indicative applications in problems of the spine and extremities, b) Selection criteria of a massage technique, c) Therapeutic schemas. Evidence-based practice.

Practical – Teaching Units

- Palpation. a) Palpation of the skin, muscles and tendons, b) Evaluation of findings.
- Application of classic massage techniques after simulation of assessment and advising the patient in order to obtain informed consent regarding the type of therapy. a) Light strokes, pressure, deep stroke, kneading, b) Application to upper and lower extremities and to the trunk.
- Application of classic massage techniques to the upper and lower extremity. Vibration, percussion, chopping, hacking, tapping, slapping.
- Application of classic massage techniques to the trunk. Vibration, percussion, chopping, hacking, tapping, slapping.
- Deep massage. a) Application of deep massage to the trunk and extremities, b) Application of massage techniques for the mobilisation of scar tissue.
- Functional massage. a) Application to the lower extremities. b) Application to the trunk.
- Connective tissue massage. a) Evaluation of connective tissue problems, b) Application to special problems.
- Lymph massage. a) Evaluation of lymphatic system problems, b) Application to special problems such as primary lymphoedema, post-surgery lymphoedema, post-traumatic lymphoedema.
- Reflex points massage. a) Application of special techniques to trunk reflex points, b) Application of special techniques to reflex points of the upper and lower extremities.
- Massage to the abdomen. a) Assessment, b) Application to pathological, presurgery and post-surgery cases.
- Application of massage techniques in sports. Pregame, postgame and training period.

Applications for special problems.

- Application of combination of therapeutic schemas of classical massage and reflexology techniques to trigger points and tender points.
- Application of combination of therapeutic schemas of classical massage and reflexology techniques to acupuncture points.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>Delivery</td><td>Face to Face</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>Teaching Organization</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>50</td></tr>
<tr><td>Workshop</td><td>20</td></tr>
<tr><td>Teamwork or individual work in clinical case analysis application</td><td>20</td></tr>
<tr><td>Lab / Experimental application</td><td>60</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>Delivery</td><td>Course theory is evaluated by:

1. written final examination (50%) which Includes questionnaires that cover all the course material and are related to multiple-choice questions, selection, right-wrong, fill-in-the-blank and text development (essay type questions)

- Presentation of teamwork

2. The laboratory part of the course (50%) is assessed with mid-term laboratory assessments units</td></tr>
</table>

(5) SUGGESTED READING

- *Cantu RJ and Grodin AJ.Myofascial manipulation.Therapy and clinical application. 3rd edition.Gaithersburg: Aspen Publication, 2011.*
- *Dicke E, Schliack H and Wolf A. A manual of reflexive therapy of the connective tissue.Scarsdale, NY: Sidney's Simon Publishers, 1978.*
- *Giovanni De Domenico. Principles and Practice of Soft Tissue Manipulation.5th Edition.Missouri: Saunders Elsevier, 2007.*
- *Σφετσιώρης Δημήτρης Κ. Θεραπευτική Μάλαξη, Εκδόσεις d.K.S., 2003*

Module Outline of 'Clinical Electrotherapy'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-3040	**Semester**	3rd
Module Title	Clinical Electrotherapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (lectures)	3	**6**
Laboratory (laboratory training)	2	
Total	5	

Module Type	Specialty Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The module of CLINICAL ELECTROTHERAPY aims to study and teach the therapeutic effects of Electrical Stimulation (ES) through the application of electrical currents on the human body. The purpose of the module is to provide students with the necessary skills to plan and apply therapeutic schemas in various diseases, injuries and syndromes by selecting the appropriate therapeutic protocols with the right application sequence. After having successfully completed the module, students: • Will have gained fundamental knowledge of the indications for application, the contraindications, the biological effects and the therapeutic effects of electrical currents. • Will be able to inform the patient about the purpose of the ES, the benefits, the expected therapeutic effect, the potential risks and obtain a written informed consent for the application of the ES. • Have gained the necessary knowledge and skills to evaluate their patients and apply appropriate therapeutic regimens and protocols for the application of clinical ES and its specific application. • Will be able to collaborate with other specialties of health scientists where needed (multidisciplinary meetings).
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Group work • Planning and application of fundamental principles of Clinical Electrotherapy • Development new research ideas

(3) MODULE CONTENT

- ***Introduction to Clinical Electrical Stimulation***: Summary of components of the physics of electrical stimulation. Classification and types of electrical therapeutic currents. Detailed description of the parameters for the planning of clinical electrical stimulation.
- ***Summary of components of biophysics and the biological effects of electrical stimulation*****:** Physiological effects of electrical stimulation. Thermal, chemical effects and contraindications of electrical stimulation
- ***Electrical Muscular Stimulation of Enervated Muscles*****:** Neurophysiology of the normal muscle contraction. Indications and outcomes. Reference, analysis and justification of the parameters of the electrical stimulation of enervated muscles.
- ***Electrical Muscular Stimulation of Denervated Muscles*****:** Neurophysiology of the muscle contraction after denervation. Indications and outcomes. Reference, analysis and justification of the parameters of the electrical stimulation of denervated muscles
- ***Specific Instructions for the Application of Electrical Muscular Stimulation of Denervated Muscles*****:** Methods of application. Examples of application to specific disorders or peripheral nerve injuries.
- ***Sensory Electrical Stimulation. Neurophysiology of Electroanalgesia***
- ***Sensory Electrical Stimulation. Transcutaneous Electrical Nerve Stimulation (TENS)*****:** Indications and outcomes. Reference, analysis and justification of the parameters of electrical

stimulation with TENS.

- ***Sensory Electrical Stimulation. Interferential Currents*:** Indications and outcomes. Reference, analysis and justification of the parameters of electrical stimulation with interferential currents.
- ***Electrical Stimulation in disorders of the central nervous system (CNS)*:** Applications of electrical muscular stimulation. Application of TENS. Special applications for the reduction of spasticity, for motor retraining and muscle activation in diseases of the CNS.
- ***Application of Functional Electrical Stimulation (FES)*:** Retraining of gait and lower extremity function.
- ***Iontophoresis***: Indications and outcomes. Reference, analysis and justification of the parameters of electrical stimulation in iontophoresis.
- ***Electromyography – Techniques of neural conductivity. Retraining of neuromotor system with EMG-biofeedback***.
- ***Application of Electrical Stimulation for special therapeutic goals*:** Reduction of postsurgical pain. Prevention and treatment of deep thrombosis. Rehabilitation of cardiac and respiratory failure.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Theory Lectures and presentations Guest speakers approved by the Physiotherapy Department.	
	Theory Use of e-class platform for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the module, conferences, etc.	
	Total	**90**
	Laboratory The students practice on practical and clinical problems in relation to planning and applying the protocols of electrical stimulation.	**90**
	Course Total	**180**

STUDENT ASSESSMENT	**Theory (50%)** Final written examination (50%), which may include: ✓ Multiple choice questions ✓ Short-answer or open ended questions, analysis of roles and interest parts in a brief case study ✓ Solving problems relating quantitative data of a working time and cost ✓ Comparative evaluation of theory elements **Laboratory (50%)** • Continuous assessment of students throughout the semester with practical exercises or questions about what subjects they studied. • Final examination of all the modules taught.

(5) SUGGESTED READING

Suggested Reading:

- *Γιόκαρης Π. Θεραπευτικά Σχήματα - Κλινική Ηλεκτροθεραπεία. Αθήνα: Εκδόσεις Γράμμα Α.Ε., 2007.*
- *Μπάκας Ε. Φυσική Ιατρική και Αποκατάσταση. Τόμος 1ος. Αθήνα: Ιατρικές Εκδόσεις Ζήτα, 1995.*
- *Φραγκοράπτης Ε. Εφαρμοσμένη Ηλεκτροθεραπεία - Θεωρία και Πράξη Μεθόδων Ηλεκτροθεραπείας . Θεσσαλονίκη: Εκδόσεις Πετρούλα , 1994*
- *Mackler L, Robinson A. Clinical Electrophysiology: Electrotherapy and Electrophysiologic Testing. ThirdEdition. Baltimore, MD: WoltersKluwer - LippincottWilliams&Wilkins, 2008.*
- *Nelson RM, Currier DP, Hayes KW. Clinical Electrotherapy. Third Edition. USA: Apleton& Lange, 1999.*
- *Robertson V, Ward A, Low J, et al. Electrotherapy Explained. Principles and Practice. 4th Edition. Edinburgh: ButterworthHeinemann, 2006.*
- *. Robertson V, Ward A, Low J, et al. Ηλεκτροθεραπεία - Βασικές Αρχές και Πρακτική Εφαρμογή. 4η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.*
- *Watson T. Ηλεκτροθεραπεία – Τεκμηριωμένη Πρακτική. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2011.*
- *William P. Therapeutics Modalities in Rehabilitation. 4th Edition. Columbus, OH: McGraw-Hill Global Education Holdings, 2011*

Module Outline of 'Clinical Ergophysiology'

(1) GENERAL

School	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-3050	**Semester**	**3rd**
Module Title	Clinical Ergophysiology		

Independent Teaching Activities	**Weekly Teaching Hours**	**Credits**
Lectures, Workshops	3	5

(2) LEARNING OUTCOMES

Learning Outcomes
Clinical Ergophysiology is the science of studying the energy work of all the physiological systems of the human body that are needed to perform physical and mental activity. The module of Clinical Ergophysiology is explored the demanded energy sources of exercise, homeostasis regulatory mechanisms, biological adaptations of human body systems from rest to exercise. As well as, it is involved in specific factors that affecting exercise (such as diseases, specific populations, metabolism and nutritional needs) for improving general health status.

Clinical Ergophysiology is explored information on the laboratory tests either in athletes or in general population in relation to exercise energy needs and its performance. This module provides to students the opportunity to learn the physiological basis of exercise and to understand the exercise management based on the human body's bioenergy systems (such as ATP, hormonal, nervous, muscular, and cardiovascular) as well as psychological, social and environmental effects.

Students after successfully completing the module:

- Have acquired knowledge of the science of Clinical Ergophysiology.
- Be able to understand and apply assessment methods combined with physiological systems mechanisms in the context of functionality, prevention and promoting physical and mental health.
- Able to understand and apply planned exercise in relation to health problems status and performance of the trainee.
- Have the ability to identify and quantify the immediate and long-term effects of the designed exercise programmes.
- Be able, through clinical reasoning, to collect, interpret and synthesize exercise programmes for special population groups.
- Have acquired the necessary skills to adequately implement clinical interventions related to bioenergy systems.

General Competences
• Analysis and synthesis of data and information • Clinical decision making • Independent work • Teamwork • Design and management of the biological / functional mechanisms of the human body in relation to physical activity and performance

(3) MODULE CONTENT

- Introduction of Clinical Ergophysiology. History of the theoretical basis of Exercise Physiology. The response to the application of exercise of the physiological systems of the human body in terms of acute and chronic adaptations. Applications of Clinical Ergophysiology in physiotherapy rehabilitation.
- Bioenergetic systems and the energetic basis of exercise. Measurement of energy cost during exercise. Energy costs at rest and during exercise.
- Aerobic capacity – aerobic endurance. Maximal oxygen uptake. Factors affected aerobic capacity, age and gender.
- Anaerobic capacity. Lactic acid and exercise. Factors affected anaerobic capacity.
- Muscle function and adaptations to exercise. Structure and function of skeletal muscles. Skeletal muscles and adaptation to exercise.
- Muscle functions and factors of muscle performance. Muscle performance. Factors affected muscle performance. Anaerobic capacity.
- Neuromuscular control and exercise. Structure and function of the nervous system. Central and peripheral nervous system. Kinaesthetic control and neural adaptations to exercise.
- Respiratory adaptations to exercise. Respiratory response and exercise. Limitations of the respiratory system and clinical application of exercise.
- Cardiovascular adaptations to exercise. Cardiovascular response and exercise. Limitations of the cardiovascular system and clinical application of exercise.
- Exercise and hormones – immune system. Endocrine function and exercise. Limitations of endocrine function and clinical application of exercise. Immune response and exercise. Limitations of the immune system and clinical application of exercise.
- Exercise and psychological factors. Personality, intelligence, anxiety, motivation. Limitations of the clinical application of exercise in relation to the personality of the individual.
- Body composition. Composition of the human body. Methods for the determination of body composition.
- Diet and exercise. Categories of dietary components. Water and electrolytes. Vitamins and physical performance. Obesity – ideal weight. Systems for the assessment of diet.
- Thermoregulation and exercise. Heat production – body temperature. Thermal disorders and clinical application of exercise.
- Adaptations to exercise and to its abstinence. Determination of exercise and prevention programmes – American College of Sports Medicine (ACSM) guidelines.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>Delivery</td><td>Taught class lectures</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>Teaching Organization</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>110</td></tr>
<tr><td>Workshop</td><td>20</td></tr>
<tr><td>Educational Visits</td><td>10</td></tr>
<tr><td>Written Assignments</td><td>10</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>Student Assessment</td><td>Course theory is evaluated by:
written final examination (70%) which includes questionnaires that cover all the course material and are related to multiple-choice questions. selection, right-to-wrong, filling in small sentences or words and developing a text in a study evaluation case
Teamwork presentation (30%)</td></tr>
</table>

(5) SUGGESTED READING

Suggested Reading

- *American College of Sports Medicine. ACSM's Introduction to Exercise Science. 1st Edition. USA: Lippincott Williams & Wilkins, 2011.*
- *American College of Sports Medicine. ACSM's exercise management for persons with chronic diseases and disabilities. 3rd Edition. Champagne, IL: Human Kinetics, 2009.*
- *American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. Baltimore: Lippincott Williams & Wilkins, 2006.*
- *Astrand PO, Rodahl K, Dahl HA, et al. Textbook of work physiology. Physiological basis of Exercise. Champagne, IL: Human Kinetics, 4th Edition, 2003.*
- *Bloomfield J, Fricker PA, Fitch KD. Science and Medicine in Sports. 2nd Edition. USA: Blackwell Science Pty Ltd, 1996.*
- *Bromley PD. Clinical Skills for Exercise Science. Routledge: Taylor & Francis Group, 2010.*
- *Ehrman JK, Gordon P, Paul SV, Steven J. Keteyian. Clinical Exercise Physiology. 3rd Edition. IL: Human Kinetics, 2013.*
- *Κλεισούρας Β. Εργοφυσιολογία (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2011.*
- *McArdle W. Φυσιολογία της Άσκησης (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2001.*
- *Mcardle WD, Katch FI, Katch VL. Exercise physiology: energy, nutrition, and human performance. 7th Edition. Lippincott Williams & Wilkins, 2009.*
- *Melvin WH. Nutrition for fitness and sport. 4th Edition. Chicago: William C Brown Pub, 1995.*
- *Powers S, Howley E. Exercise Physiology: Theory and Application to Fitness and*

Performance. 8th Edition. USA: McGraw-Hill Humanities, 2011.

- *Raven P, Wasserman D, Squires W, Murray T. Φυσιολογία της άσκησης. Μια ολιστική προσέγγιση. Αθήνα. Ιατρικές Εκδόσεις Λαγός Δημήτριος, 2016.*
- *Χανιώτης Φ. Εργοφυσιολογία. Αθήνα: Ιατρικές Εκδόσεις Λίτσας 2008.*
- *Wilmore J, Costill D. Φυσιολογία της Άσκησης και του Αθλητισμού (Τόμοι I, II, III). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2006.*
- *Αστέριος Δεληγιάννης. Ιατρική της άθλησης. Universtiy Studio Press. Third edition, 2016.*
- *17. Powers KS, Howley TE. Φυσιολογία της άσκησης. Θεωρία και εφαρμογές ευρωστίας και απόδοσης. Broken Hill, 2018.*

-Suggested Journals

- *Medicine and Sports in Exercise Science*
- *Sports Sciences*
- *Journal of Sports Science and Medicine*
- *Journal of Sports Medicine and Physical Fitness*
- *Journal of Applied Physiology*
- *Journal of Physiology- London*
- *Journal of Physiology- Paris*

Module Outline of 'Rheumatology'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	GRADUATE		
MODULE CODE	Π1-3Α10	SEMESTER	3rd
MODULE TITLE	RHEUMATOLOGY		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
Theory (lectures)		2	3
MODULE TYPE	Elective		
PRE-REQUIRED MODULES			
TEACHING AND EXAMINATION LANGUAGE	Greek		
MODULES SUITABLE for ERASMUS STUDENTS			
MODULE WEBPSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The course provides knowledge and skills regarding the interpretation, the definition, the classification, the comprehension and the characteristcs of rheumatic diseases. The student will learn about the prevention, the current capabilities of the therapeutical interventions, the psychosocial impact and physical rehabilitation of rheumatic diseases.

The study aims to educate students about the comprehension of rheumatic diseases and their impact on patients and the society. It aims at the development of an appropriate level of knowledge and skills for the diagnosis, prevention, therapy and rehabilitation of rheumatic diseases.

The objective is the comprehension of the magnitude of the problem the rheumatic diseases pose, at a national and international level, of the scientific approach to the content and to the classification of rheumatic diseases, of the symptoms and clinical signs, the impact, the prevention and the therapy and rehabilitation.

After the successful completion of the course, the student will be able to:

- Comprehend the risk factors, the biological and psychosocial parameters
- Have the scientific background for the prevention, diagnosis, therapy and rehabilitation
- Use tools and methods for the assessment of rheumatigical diseases and for tracking the problem with the appropriate interventions.
- Operate independently, or in cooperation with other health professionals in the context of health services provision, diagnosis, therapy and rehabilitation of rheumatic diseases.

General competences

- Individual work
- Team work
- Work in a multi-disciplinary environment
- Development of new research ideas
- Project designing and managing

- Respect to multiculturalism and diversity

(3) MODULE CONTENT

- Definition and classification of rheumatic diseases. Epidemiology – public health.
- Basic principles of rheumatology – musculoskeletal health. Comorbidities. Clinical signs. Definition of arthritis.
- Basic principles of immunology. Autoimmunity. Meaning of inflammation and biological indices.
- Rheumatic diseases: The role of genes – immune system – hormones – environmental factors – diet – exercise – severity – infections.
- Rheumatoid arthritis.
- Seronegative arthritis. Angylosic spondyloarthritis. Psoriatic arthritis. Enteropathic arthritis.
- Connective tissue diseases. Systemic lupus erythematosus. Mixed connective tissue disease. Dermatomyositis – Polymyositis. Scleroderma. Sjogren syndrome.
- Vasculitis. Classification. Temporal (giant cell) arteritis. Rheumatic polymyalgia. Polyarteritis nodosa. Adamantiades-Behcet's disease.
- Gout. Osteoarthritis. Osteoporosis (FRAX assessment).
- Therapeutic options. The role of NSAIDs, corticoids, slow-acting antirheumatic, immunosuppressants, biologic factors.
- Joint and soft tissues blocks. Corticosteroids in inflammatory arthritis and regional pain. Hyaluronic injections. Stem cells and PRP blocks.
- Physical rehabilitation in rheumatoid diseases. Exercise and physiotherapy
- Psychosocial sequelae of rheumatoid and musculoskeletal diseases. Patient management.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>DELIVERY</td><td>Physical presence.</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)</td><td>Open e-class platforms</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td><table><tr><th>Activity</th><th>Semester workload</th></tr><tr><td>Lectures</td><td>90</td></tr><tr><td></td><td></td></tr><tr><td>Total</td><td>90</td></tr></table></td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>The course will be assessed with</td></tr>
</table>

	✓ Final written examination which includes questions in the form of multiple choice questions, right/wrong questions, fill the blank questions and essay type questions (100%).

(5) SUGGESTED READING

Suggested reading

- *Χανιώτης Φ., Χανιώτης Δ. Νοσολογία-Παθολογία. Ιατρικές Εκδόσεις Λίτσας, 2011. (Εύδοξος: 12573696)*
- *Klippel J.,Dieppe P. Βασική κλινική ρευματολογία. Εκδόσεις Broken Hill Publishers LTD, 2005.*
- *Fauci A. S. Harrison's Ρευματολογία. Επιστημονικές Εκδόσεις ΠΑΡΙΣΙΑΝΟΥ Α.Ε., 2011*

Module Outline of 'Paediatrics'

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-3Β10	**Semester**	3rd
Module Title	Paediatrics		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	2	**3**

Module Type	Elective Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
Acquiring necessary basic knowledge on Paediatrics, understanding the importance of the growth and development of the child's normal function from the perinatal period until adolescence; recognizing the special needs of children on their physical and mental development and maturation; recognizing the differences between pediatric and adult diseases (epidemiology, clinical manifestations, long-term effects etc.); knowledge of the most common and most severe diseases in childhood. After having successfully completed the module, students should have basic knowledge about Paediatrics, which is essential for any Physiotherapy graduate and necessary for the successful attendance of the Module 'Physiotherapy in Neurological Pediatric Disorders and Diseases' and the Module 'Clinical Training' in Pediatric centres.
General Competences
• Promoting free, creative and inductive thinking • Search, analysis and synthesis of data • Decision-making for goal setting and electing physiotherapy techniques

(3) MODULE CONTENT

Presentation of normal function and diseases in childhood, per system:

- History and Clinical Examination,
- Growth, Development, Psychomotricity and Evolution,
- Nutrition,
- Child and Environment,
- Adolescence,
- Vaccinations,
- Genetics, Perinatal Medicine,
- Endogenous Metabolism Disorders,
- Defense System,
- Neonatology,
- Infections,
- Allergy,
- Respiratory System,
- Circulatory System,
- Vaccination system,
- Digestive system,
- Acid-base homeostasis,
- Urogenital Tract,
- Endocrine Glands,
- Nervous System,
- Collagen, Musculoskeletal, Skin, Eye Diseases,
- Hematological Neoplasms and Solid Tumors,
- Poisoning,
- Evaluation of laboratory tests in children.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	90
	Total	**90**
STUDENT ASSESSMENT	Final written examination (100%) of all module content, through : ✓ Multiple choice questions ✓ True-or-false questions ✓ Gap-filling ✓ Short answer questions ✓ Open ended questions	

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Ματσανιώτης Ν, Καρπάθιος Θ, Νικολαϊδου-Καρπαθίου."Επίτομη Παιδιατρική". Αθήνα: Ιατρικές Εκδόσεις Λίτσας, 2011 2."Βασική Παιδιατρική" Κανακούδη-Τσακαλίδου Φλώρα, Γκάτζου Γ. Θεσσαλονίκη: University Studio Press, 20144.Νεογνολογία Κων/νος Στεργιόπουλος Ιατρικές Εκδόσεις Λίτσας 2002*
  - *Lissauer T, Clayden G.Σύγχρονη Παιδιατρική. BROKEN HILL PUBLISHERS LTD, 2012.*
  - *Rudolf M, M. Levene. Επίτομη Κλινική Παιδιατρική. Εκδότης: ΠΑΡΙΣΙΑΝΟΥ ΑΝΩΝΥΜΗ ΕΚΔΟΤΙΚΗ ΕΙΣΑΓΩΓΙΚΗ ΕΜΠΟΡΙΚΗ ΕΤΑΙΡΙΑ ΕΠΙΣΤΗΜΟΝΙΚΩΝ ΒΙΒΛΙΩΝ, 2008*

4th SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	MUSCULOSKELETAL PHYSIOTHERAPY FOR INJURIES	SM	П1-4010	3	90	2	90	5	180	180	6
2	PHYSIOTHERAPEUTIC METHODS AND TECHNIQUES IN DEASEASES OF THE NERVOUS SYSTEM	SM	П1-4020	3	90	2	90	5	180	180	6
3	RESPIRATORY PHYSIOTHERAPY	SM	П1-4030	3	90	2	60	5	150	150	5
4	CARDIOVASCULAR PHYSIOTHERAPY	SM	П1-4040	3	90	2	60	5	150	150	5
5	PHYSIOTHERAPY ASSESSMENT-CLINICAL REASONING	SM	П1-4050	3	120			3	120	120	4
6	RESEARCH METHODS	SBM	П1-4060	3	120			3	120	120	4
TOTAL				**18**	**600**	**8**	**300**	**26**	**900**	**900**	**30**

Module Outline of 'Musculoskeletal Physiotherapy for Injuries'

(1) GENERAL

FACULTY	**Faculty of Health & Caring Professions**		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULE CODE	P1-4010	**SEMESTER**	**4th**
MODULE TITLE	**Musculoskeletal Physiotherapy for Injuries**		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures, laboratory exercises, study visits, clinical training	5	6
Total	5	6

MODULE TYPE	Specialty Course
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE	Greek
MODULE SUITABLE for ERASMUS STUDENTS	YES (in English)
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The aim of the course is the study and understanding of the physiotherapy assessment and treatment of injuries of the musculoskeletal and the peripheral nervous system. In particular, the assessment of the musculoskeletal system is taught in detail, as is the treatment of musculoskeletal injuries in relation to the bones, the muscles, the tendons, the ligamentous and capsular components, as well as the treatment of peripheral nerve injuries. The teaching units are classified according to body regions and there are two main sections: one of physiotherapy assessment and one of physiotherapy treatment/rehabilitation. Depending on the type of the injury, the choice of treatment (conservative/surgical), and the result of the physiotherapy assessment, the planning of the physiotherapy treatment is determined (postoperative physiotherapy or physiotherapy after conservative treatment).

Students after completing the course "Musculoskeletal Physiotherapy Injuries":

• Will be able to systematically complete the evaluation of the patient with musculoskeletal problems
• Have the ability to understand subjective and objective findings, reproduce them using the clinical trials that are most appropriate at both the theoretical and clinical / practical levels.
• Understand and record physiotherapy evaluation, and define the short-term and long-term goals of physiotherapy intervention in musculoskeletal injuries
• Be able to organize and develop a documented physiotherapy protocol, as well as the ability to explain to the patient their goals through effective communication.
• Be able to design and choose the most appropriate approach for each patient, but also reassess it by understanding the needs (work, social, family), modifying and adapting their interventions.
• In the context of awareness and practice of the physical workplace of physiotherapy, students will be trained in private and public clinical practice areas of musculoskeletal physiotherapy, so that they can apply the knowledge gained in real life, operate in an interdisciplinary environment, understand their professional and ethical responsibilities; and to recognize the need for lifelong learning and continuous pursuit of scientific knowledge.
• Be able to apply the methods and techniques they choose for each musculoskeletal injury, with safety, efficacy and dignity of the patient and their own.
• Understand and recognize the expected evolution of an intervention, and review their approach if necessary.
• Can use tools (questionnaires, scales, machines,etc.) recording subjective and objective findings, whilst being able to identify any weaknesses in either examination or treatment, and to develop other more appropriate tools.
• They will be able to explain to the patient any complications, alert them to possible adverse events, through targeted and effective communication, ensuring their consent for any intervention.

General Competences - Learning Outcomes

- Data Collection and Analysis
- Composition of information, intervention plan design and decision making
- Independent work
- Teamwork.
- Work in an interdisciplinary environment.
- Respect for diversity and multiculturalism
- Demonstrate social, professional and ethical responsibility and sensitivity to medical privacy issues, to specific populations
- Observation and production of new techniques or understanding of existing ones

- Production of new research ideas.

(3) MODULE CONTENT

Theoretical Part

- Introduction to the basic theoretical background of physiotherapy assessment and treatment of musculoskeletal injuries. Concept of inflammation, healing principles of collagen, connective, neural and bone tissue. Adaptive changes of muscle, neural, connective, collagen and bone tissue to the pathology of the injury/fracture. Fracture complications. Principles of normal motor control and recognition of dysfunctional control. Application principles of therapeutic exercise for musculoskeletal injuries.
- Principles of physiotherapy assessment and of recording musculoskeletal problems. Medical history, physical examination. Diagnostic tests, clinical reasoning, selection of treatment based on clinical and research evidence. Findings of special clinical significance during the assessment/rehabilitation of the musculoskeletal system.
- Musculoskeletal injuries of the shoulder – shoulder girdle. Physiotherapy assessment and treatment of injuries of the region. Testing for the integrity of tendons, ligaments, muscles, fasciae, capsule, bursae, testing for fibrocartilagous lesions, shoulder instability, impingement syndromes. Shoulder – shoulder girdle fractures. Physiotherapy rehabilitation after conservative or surgical treatment of the above injuries (tendon, ligament suture, internal or external fixation, arthroplasty, etc.).
- Musculoskeletal injuries of the elbow. Physiotherapeutic assessment and treatment of elbow region injuries. Testing of the integrity of tendons, ligaments, muscles, capsule/bursae, and for nerve entrapment. Elbow region fractures. Physiotherapy rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, arthroplasty, etc.).
- Musculoskeletal injuries of the wrist and hand. Physiotherapy assessment and treatment of wrist and hand region injuries. Testing of the integrity of tendons, ligaments (instability), muscles, capsule/bursae, and for fibrocartilagous lesions and nerve entrapment. Wrist and hand fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, arthroplasty, nerve decompression, etc.).
- Musculoskeletal injuries of the hip region. Physiotherapy assessment and treatment of hip region injuries. Testing of the integrity of tendons, ligaments (instability), muscles, capsule/bursae (dislocation, subluxation), and for fibrocartilagous lesions and nerve entrapment. Pelvis and hip fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, hemi and total hip arthroplasty, etc.).
- Musculoskeletal injuries of the knee region. Physiotherapy assessment and treatment of knee region injuries. Testing of the integrity of menisci, tendons, ligaments (instability), muscles, capsule/bursae, patellofemoral joint, and for fibrocartilagous lesions. Knee fractures. Physiotherapy rehabilitation after conservative or surgical treatment (tendon suture, syndesmoplasties, internal or external fixation, hemi or total knee arthroplasty, etc.).
- Musculoskeletal injuries of the foot region. Physiotherapy assessment and treatment of foot region injuries. Testing of the integrity of tendons, ligaments (instability), muscles, capsule/bursae. Fractures of the distal third of tibia/fibula and of the foot.. Physiotherapy rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, arthroplasty, etc.).
- Musculoskeletal injuries of the spine region (cervical, thoracic and lumbar spine). Physiotherapy assessment and treatment of spine injuries. Testing of the integrity of tendons, ligaments (instability),

muscles. Fractures of the spine. Physiotherapy rehabilitation after conservative or surgical treatment (laminectomy, spondylodesis, kyphoplasty, etc.).

- Peripheral nerve injuries (apraxia, axonotmesis, neurotmesis) with regional application for the upper extremity and the face. Assessment of neurological levels in the upper extremity, the thoracic spine, and of the cranial nerves. Physiotherapy treatment protocols and evidence-based practice.
- Nerve "entrapment" syndromes in the upper and lower extremity. Physiotherapy assessment and treatment depending on the choice of therapy (conservative or surgical).
- Application principles of physiotherapy treatment programs for peripheral nerve injuries based on the choice of therapy (conservative physiotherapy and postoperative physiotherapy).

Practical Part – Clinical Training

- Introductory concepts. Assessment of a patient with a musculosketal injury. Medical history taking, recording of data according to international standards. Practical examples of the recording of findings.
- Assessment of the adult and paediatric patient with a musculoskeletal injury. Physical examination. Basic principles of application. Parameters for correct practice. (Position of patient/therapist, particularities depending on somatotype, type of injury and severity, possible emergency symptoms, etc.).
- Complications of fractures. Practical examples with recording of findings.
- Physiotherapy assessment and rehabilitation of shoulder musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings for the shoulder/shoulder girdle. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapy assessment and rehabilitation of elbow musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the elbow region. Recording of subjective and objective findings for the elbow region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular injury/tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapy assessment and rehabilitation of wrist/hand musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the wrist/hand region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapy assessment and rehabilitation of pelvis and hip musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the pelvis/hip region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.

- Physiotherapy assessment and rehabilitation of knee musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the knee region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapy assessment and rehabilitation of foot musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings for the foot. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapy assessment and rehabilitation of spinal musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the spinal region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Assessment of the neurological levels of the cervical spine and the brachial plexus. Components of the physiotherapy intervention for problems of these levels. Practical application by the students.
- Assessment of the neurological levels of the thoracic spine, the lumbar spine, the sacrococcygeal roots/sciatic nerve. Components of the physiotherapy intervention for problems of these levels. Practical application by the students.
- Physiotherapy intervention application protocol for the conservative or surgical treatment of a peripheral nerve injury (example of physiotherapy application for conservative or postoperative treatment). Practical application by the students.
- Application protocol of physiotherapy intervention for brachial plexus injuries after conservative medical treatment or surgery.
- Assessment and rehabilitation for cranial nerve problems. Treatment of facial nerve paresis. Practical application by the students.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity a**	**Semester workload**
	Lectures	80
	Seminars	20

	Laboratory exercises	30
	Study & analysis of literature	10
	Writing individual / group work	20
	Educational Visits	10
	Clinical education	10
	Course Total	180
STUDENT ASSESSMENT	Critical Assessment with a written final examination (50%), which may include: ✓ Multiple choice test ✓ Short Answer or Short Growth Questions ✓ Clinical case study analysis In the final evaluation may also be taken into account: ✓ Individual or group work ✓ Case study presentation ✓ Oral examination in practical matters or in clinical settings ✓ Participation in a research activity (data collection, finding of evidence, editing, etc.) Laboratory part (50%): oral examination	

(5) RECOMMENTED READING

Suggested Reading:

- *Brotzman SB, Manske RC. Clinical Orthopaedic Rehabilitation. 3rd Edition. Philadelphia, PA: Mosby, 2011.*
- *Brotzman SB, Wilk KE. Handbook of Orthopaedic Rehabilitation. Philadelphia, PA: Mosby, 2007.*
- *Canale T, Beaty J. Campbell's Operative Orthopaedics. 12th Edition. London: Mosby, 2013.*
- *Donatelli R, Wooden M. Orthopaedic Physical Therapy. 4th Edition. Philadelphia, PA: Churchill Livingstone, 2009.*
- *Hoppenfeld S: Ορθοπεδική Νευρολογία. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.*
- *Hoppenfield S. Φυσική εξέταση της σπονδυλικής στήλης και των άκρων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.*
- *Kisner C, Colby L. Therapeutic Exercise: Foundations and Techniques. 6th edition. Philadelphia: Published by DavisPlus, 2012.*
- *Magee DJ. Orthopedic Physical Assessment. 5th Edition. Philadelphia, PA: W.B Saunders, 2008.*
- *McRae R, Esser M. Practical Fracture Treatment. 5th Edition. Edinburgh: Churchill Livingstone, 2008. Ελληνική έκδοση:*
- *Σουκάκος Π, Βλάσης Κ, Νάτσης Κ. Κλινική Αντιμετώπιση Καταγμάτων. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2008.*
- *Miller M, Hart J. Review of Orthopaedics. 6th Edition. Philadelphia, PA: Saunders Elsevier, 2012. Ελληνική Έκδοση: Μπάμπης Γ. Review Ορθοπαιδικής. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.*
- *Petty J. Nichola. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists*
- *Snyder G. Differential diagnosis for physical therapists. 5th Edition. Edinburgh: Saunders Elsevier, 2012*

- *Solomon L, Warwick D and Nayagam S. Apley's System of Orthopaedics and Fractures. 9th edition. Oxford: Taylor & Francis Group, 2013*

Module Outline of 'Physiotherapeutic Methods and Techniques in Diseases of the Nervous System'

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-4020	**Semester**	4th
Module Title	Physiotherapeutic Methods and Techniques in Diseases of the Nervous System		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (lectures)	3	**6**
Laboratory (specific laboratory exercises and clinical training)	2	
Total	5	

Module Type	Specialty Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	YES (English), undertaking an essay
Module Website (URL)	

(1) GENERAL

(2) LEARNING OUTCOMES

Learning Outcomes

The module PHYSIOTHERAPEUTIC METHODS AND TECHNIQUES IN DISEASES OF THE NERVOUS SYSTEM is a basic introductory course for the concepts of physiotherapeutic interventions in patients with neurological deficits. The module content aims to provide students with an understanding of the concept of disability, the role of PTs in its management, the theories of motor control and motor learning as well as the theoretical basis and philosophy of the various methods, techniques and interventions applied to the treatment of people with neurological diseases.
The module describes the principles of each method, its indications and contraindications to the patient with neurological deficits.
This module is the basis on which the student will gain knowledge about the therapeutic approach through the methods and techniques applied to patients with neurological diseases.
The aim of the module is to provide students with an understanding of the basic principles of motor control and motor learning theories, the motor development of the individual, and the choice of the most appropriate physiotherapeutic intervention to promote the various stages of motor control.
After having successfully completed the module, " Physiotherapeutic Methods and Techniques in Diseases of the Nervous System " students will be able to:

- Understand the disability model
- To explain the role of PT in the treatment of patients with neurological deficits
- Understand the relationship between motor control, motor learning and movement development
- To distinguish the hierarchical theory from the systems theory of the motor control
- Describe the development of posture and balance control
- Associate theories of motor control and motor learning with physiotherapy intervention
- To describe the philosophy of the various methods and techniques
- Describe the motor learning strategies used in the methods and techniques

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Group work
- Work in an interdisciplinary context

(3) MODULE CONTENT

- Introduction to Neuroscience of Physiotherapy (The most important nervous system structures. The main functions of the nervous system structures)
- Nagi disability model (The role of PT in the treatment of adults and children with neurological deficits)

- Theories of motor control and motor learning (e.g. hierarchical theory, systems theory, Adams's closed-loop, Schmid's schema theory etc)
- Relationship of motor control with therapeutic exercise (Therapeutic Session Planning)
- Motor development I (developmental theories, gross and fine motor milestones)
- Motor development II (typical motor development)
- Neurophysiological methods I (PNF, theoretical background and therapeutic approach)
- Neurophysiological methods I (Bobath/NDT, theoretical background and therapeutic approach)
- Neurophysiological methods II (Brunnstrom, Vojta, theoretical background and therapeutic approach)
- Neurophysiological methods III (Brunnstrom, Vojta, Rood etc.; theoretical background and therapeutic approach)
- Motor learning methods I (Carr & Shepherd, Perfetti; theoretical background and therapeutic approach)
- Motor learning methods II (Peto-Conductive Education, Ayres-Sensory Integration; theoretical background and therapeutic approach)
- Motor learning methods III (Constraint Induced Movement Therapy (CIMT); Reference of the theoretical basis, basic protocols applied to children and adults with hemiplegia)
- Association of theories with therapeutic intervention

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>DELIVERY</td><td colspan="2">Physical presence</td></tr>
<tr><td>USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)</td><td colspan="2">Open e-class platform</td></tr>
<tr><td rowspan="6">TEACHING ORGANIZATION</td><td>Activity</td><td>Semester Workload</td></tr>
<tr><td>Lectures</td><td>90</td></tr>
<tr><td>Laboratory training and exercise</td><td>70</td></tr>
<tr><td>Educational visits</td><td>10</td></tr>
<tr><td>Submission of an individual or team project</td><td>10</td></tr>
<tr><td>Total</td><td>180</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td colspan="2">The theoretical part of the module is assessed by final written examination (50%), which may include multiple choice questions, true-or-false questions, gap-filling and open-ended questions

The laboratory part (50%) is evaluated with continuous assessment of the students throughout the semester (with practical demonstration of assessment methods, therapeutic intervention planning and demonstration of physiotherapy techniques)</td></tr>
</table>

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Martin and Kessler. Φυσικοθεραπευτικές Παρεμβάσεις σε Ασθενείς με Νευρολογικές Παθήσεις. Επιμέλεια ελληνικής Έκδοσης: Δάφνη Μπακαλίδου. Αθήνα. Εκδόσεις: Κωνσταντάρας-Ιατρικές εκδόσεις , 2015*
  - *Alder SS, Beckers D, Buck M. PNF in practice: an illustrated guide, 2hd ed. Berlin, Springer, 2000.*
  - *Richard A. Schmidt .Motor Schema theory after 27 years: Reflections and implications for a new theory. Research Quarterly for Exercise and sport. 2003;74(4):366-375*
  - *From motor learning to physical therapy and back again: the state of art and science of motor learning rehabilitation research. Jneurol phys Ther.2014;38(3):149-150.*
  - *Carr J, Shepherd R. Νευρολογική Αποκατάσταση. Βελτιστοποίηση των κινητικών επιδόσεων. Εκδόσεις: Επιστημονικές εκδόσεις Παρισιάννου Α.Ε , 2004*
  - *O' Sullivan SB. Strategies to improve motor control and learning. In O' Sullivan SB, Schmidt TZ (eds). Physical Rehabilitation Assessment and Treatment, 4th ed. Philadelphia, FA Davis, 2001a,pp 363-410.*
  - Kathryn Sawner & Jeanne La Vigne. *Κινησιοθεραπεία στην ημιπληγία από την Brunnstrom. Νευροφυσιολογική προσέγγιση. Εκδόσεις: Επιστημονικές εκδόσεις Παρισιάννου Α.Ε .*

Module Outline of 'Respiratory Physiotherapy'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-4030	**Semester**	**4th**
Module Title	Respiratory Physiotherapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
THEORY: Interactive Lectures - practice	3	3
LABORATORY: Laboratory exercises	2	2
Total	5	5

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The Respiratory Physiotherapy course is a basic student preparation course for the Clinical Education course in Respiratory and Cardiovascular Physiotherapy.

Students after successful completion of the Respiratory Physiotherapy course will:

- Have acquired knowledge about the functioning of the affected lung
- Be aware of the guidelines for the self-management of respiratory diseases of children and adults
- Be able to aggregate, interpret, and synthesize evaluation results through clinical reasoning

- Be able to identify the short- and long-term goals of physiotherapeutic intervention in respiratory patients
- Have acquired the skills / techniques of respiratory physiotherapy in chronically ill children and adults and in severely ill patients
- Consider ethical and bioethical rules in the design of physiotherapeutic intervention

General Competences

- Analysis and synthesis of data and information
- Decision making
- Individual work
- Teamwork
- Design and management of physiotherapeutic interventions

(3) MODULE CONTENT

• Respiratory Pump Function.
• Physiotherapeutic evaluation with the international S.O.A.P. system (Subjective Objective Assessment, Assessment of Findings, Organization of Therapy, Assessment of Progress).
• Respiratory Physiotherapy in Asthma (Assessment, Guidelines, Hyperventilation Management with Breathing Pattern Re-education, Respiratory Muscle Training, Asthma Self-Management Training Sessions, Pulmonary Rehabilitation). Laboratory exercises.
• Exercise-induced Asthma and Exercise in Adults and Children (Asthma-induce Exercise, Detection Tests, Adaptation to Exercise, Leisure Physical Activities). Laboratory Exercises.
• Respiratory Physiotherapy in Chronic Obstructive Pulmonary Disease-COPD (Assessment, Guidelines, Management of Dyspnoea with Breathing Pattern Re-education, Respiratory Muscle Training, Self-Management Training Sessions, Oxygen Therapy, Eating Disorders, Pulmonary Rehabilitation). Laboratory exercises.
• Bronchial drainage techniques (Positioning-Percussions-Vibrations, Forced Expiratory Trial-FET, Active Cycle of Breathing Techniques-ACBT, Autogenic Drainage, Intrapulmonary Percussive Ventilation-IPV, Devices, Aerobic Exercise). Laboratory exercises.
• Respiratory Physiotherapy in Cystic Fibrosis (Assessment, Guidelines, Bronchial Drainage Techniques, Respiratory Muscle Training, Self-Management Training Sessions, Pulmonary Rehabilitation). Laboratory exercises.
• Respiratory Physiotherapy in patients with restrictive diseases (Pulmonary parenchymal diseases, pleural effusions, thoracic wall, and neuromuscular disorders) (Assessment, Techniques for Increasing Lung Volumes: Positions, Chest Expansion / Mobilization, Flow-oriented and Volume-oriented Incentive Spirometer). Laboratory exercises.
• Preoperative and postoperative respiratory physiotherapy in pulmonary tissue-heart-upper abdominal surgeries (Assessment, Bronchial drainage techniques, Techniques for increasing Lung Volumes, Early mobilization, Non-invasive mechanical ventilation-NIV). Laboratory exercises.

• Respiratory Physiotherapy in Intensive Care Unit-ICU (Functional and Respiratory Assessment, Breathing Exercises, Non-invasive Mechanical Ventilation (NIV), Alveoli Recruitment, Suctioning of Bronchial Secretions, Respiratory Muscle Training, Early Mobilization). Laboratory exercises.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

Delivery	Face to Face
Use of Information and Communication Technology (ICT)	Open e-class platform
Teaching Organization	**Activity** / **Semester Workload** Lectures: 90 Workshop: 60 Total: **150**
Student Assessment	The theoretical part of the course (50%) is assessed with • written final examination by administrating questionnaires of all material (multiple choice questions, right-wrong, fill-in-the-blank and text development) (70%) • and teamwork presentation (30%) The laboratory part (50%) is evaluated daily to assess the adequacy of the skills students have acquired.

(5) SUGGESTED READING

Suggested Reading:

- *Γραμματοπούλου Ε. Φυσικοθεραπευτικές Τεχνικές και Μέθοδοι Αξιολόγησης στις Αναπνευστικές Παθήσεις. Αθήνα: Εκδόσεις Κωσταντάρας,2017.*
- *AACVPR. Κατευθυντήριες οδηγίες για τα προγράμματα Πνευμονικής Αποκατάστασης. Επιμέλεια: Γραμματοπούλου Ε., Σκορδίλης Ε. Αθήνα: Εκδόσεις Πεδίο, 2015.*
- *Global initiative for asthma (GINA) Global strategy for asthma management and prevention 2019 (update). http: //www.ginasthma.org.*
- *Global initiative for Chronic Obstructive Pulmonary Diseases (GOLD) Global strategy for the diagnosis, management, and prevention 2019 (update). http: //www.goldcopd.org.*
- *Wilson LM, Morrison L, Robinson KA. Airway clearance techniques for cystic fibrosis: an overview of Cochrane systematic reviews. Cochrane Database of Systematic Reviews 2019, Issue 1. Art. No.: CD011231. DOI: 10.1002/14651858.CD011231.pub2.*

- *Gkaraveli M, Skordilis E, Grammatopoulou E, Karteroliotis K, Dania A, Morfis P and Fildisis G. The Effect of Inspiratory Muscle Training on Respiratory Pressure, Pulmonary Function and Walking Ability in Preschool Children with Cerebral Palsy. Annals of Physiotherapy Clinics. 2019; 2(1): 1-8.*
- *Grigoriadis K, Tsangaris I, Koutsoukou A, Kopterides P, Grammatopoulou E, Grigoriadou A, Armaganidis A. The respiratory effect of tracheal gas insufflation (TGI) on tracheostomized spontaneously breathing ICU patients. Journal of critical care, 2018; 48: 160-165.*
- *Grammatopoulou E, Charmpas T, Strati E, et al. The scope of physiotherapy services provided in public ICUs in Athens, Greece. Physiotherapy Theory and Practice. 2017; 33: 1-9.*
- *Grammatopoulou E, Skordilis E, Haniotou A, Zarotis J, Athanasopoulos S. The effect of a holistic self-management plan on asthma control. Physiotherapy Theory and Practice. 2017; 33:622-633.*
- *Belimpasaki V, Grammatopoulou E, Philippou A, Doumas I, et al. The implementation of Global asthma management guidelines in two general respiratory outpatient Clinics in Greece. Hospital Chronicles. 2017; 11(3):153–161.*
- *Radtke T, Nevitt SJ, Hebestreit H, et al. Physical exercise training for cystic fibrosis. Cochrane Database of Systematic Reviews 2017, Issue 11. Art. No.: CD002768. DOI: 10.1002/14651858.CD002768.pub4.*
- *Rietberg MB, Veerbeek JM, Gosselink R, et al. Respiratory muscle training for multiple sclerosis. Cochrane Database of Systematic Reviews 2017, Issue 12. Art. No.: CD009424. DOI: 10.1002/14651858.CD009424.pub2.*
- *Evangelodimou A, Grammatopoulou E, Skordilis E, Haniotou A. The Effect of Diaphragmatic Breathing on Dyspnea and Exercise Tolerance During Exercise in COPD Patients. CHEST 2015;148 (4_MeetingAbstracts), 704A-704A.*
- *Grammatopoulou E, Skordilis E, Georgoudis G, Haniotou A, Evangelodimou A, Fildissis G, Katsoulas T, Kalagiakos P. Hyperventilation in asthma: A validation study of the Nijmegen Questionnaire - NQ. Journal of Asthma. 2014; 29:1-8.*
- *Grammatopoulou E, Skordilis E, Evagelodimou A, et al. Validity and reliability evidence of the Nijmegen questionnaire in asthma. European Respiratory Journal. 2013; 42 (S57): 1307.*
- *Myrianthefs P, Gavala A, Skordilis E, Grammatopoulou E, Fildissis G, Gregorakos L, Baltopoulos, G. Spirometric reference values from a sample of an urban Greek population. Respiratory Therapy. 2012; 5:36-4.*
- *Grammatopoulou E, Skordilis E, Evangelodimou A, et al. Adequate physical activity in students with and without asthma. European Respiratory Journal. 2012; 40(S56):144.*
- *Pryor JA, Prasad SA. Physiotherapy for respiratory and Cardiac Problems. Adults and Pediatrics. 4th Edition. Edinburgh: Churchill Livingstone, Elsevier, 2012.*
- *Frownfelter D, Dean E. Cardiovascular and Pulmonary Physical Therapy. Evidence and Practice. 5th Edition. Missouri: Elsevier,Mosby, 2012.*
- *Grammatopoulou E, Haniotou A, Evangelodimou A, Tsamis N, Myrianthefs P, Baltopoulos. Factors associated with asthma control in patients with stable asthma. European Respiratory Journal. 2011; 38 (S55): 1297.*
- *Grammatopoulou E, Stavrou N, Myrianthefs P, et al. Validity and Reliability Evidence of the Asthma Control Test-Act in Greece. Journal of Asthma. 2011; 48(1):57-64.*
- *Grammatopoulou E, Skordilis E, Stavrou N, et al. The effect of physiotherapy-based breathing retraining on asthma control. Journal of Asthma. 2011; 48:593-601.*
- *Gosselink R, Clerckx B, Robbeets C, et al. Physiotherapy in the Intensive Care Unit. Neth J Crit Care. 2011; 15(2):66- 75.*
- *Grammatopoulou E, Belimpasaki V, Valalas A, Michos P, et al. Active Cycle of Breathing Techniques-ACBT contributes to pain reduction in patients with rib fractures. Hellenic Journal*

of Surgery. 2010; 82, 42-47.

- *Grammatopoulou E, Haniotou A, Douka G, Koutsouki D. Factors associated with BMI in Greek adults with asthma. Journal of Asthma. 2010; 47, 276-280.*
- *Borowitz D, Robinson KA, Rosenfeld M, et al. Cystic fibrosis foundation evidence-based guidelines for management of infants with cystic fibrosis. Journal of Pediatrics. 2009; 155(6Suppl): S73-S93.*
- *Manzano, RM, Carvalho CR, Saraiva-Romanholo BM, et al. Chest physiotherapy during immediate postoperative period among patients undergoing upper abdominal surgery: randomized clinical trial. Sao Paulo Medical Journal. 2008; 126:269-273.*
- *Grammatopoulou E, Skordilis E, Koutsouki D, et al. An 18-item standardized asthma quality of life questionnaire - AQLQ(S). Quality of Life Research. 2008; 17(2):323-33.*

- *Related Journals:*
  - *Chest*
  - *Respiratory Medicine*
  - *Journal of Asthma*
  - *Quality of Life Research*
  - *American Journal of Critical Care Medicine*
  - *American Journal of Critical Care*
  - *American Journal of Critical Care Nursing*
- *Physiotherapy Theory and Practice*

Module Outline of 'Cardiovascular Physiotherapy'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULEE CODE	P1-4040	**SEMESTER**	**4th**
MODULE TITLE	CARDIOVASCULAR PHYSIOTHERAPY		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Theoretical (Lectures)	3	
Laboratory (laboratory exercises, clinical training)	2	
Total	5	5

MODULE TYPE	Specialty Course
PRE-REQUIRED COURSES	
TEACHING AND EXAMINATION LANGUAGE	Greek
MODULE SUITABLE for ERASMUS STUDENTS	
MODULE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning Outcomes
The aim of the course CARDIOVASCULAR PHYSIOTHERAPY is the understanding of basic assessment and rehabilitation methods for the cardiovascular patient. The evaluation of the functional capacity of the cardiovascular system of healthy persons and of cardiovascular patients is taught in detail during all stages of their rehabilitation. Special emphasis is given to the effect and the benefits of regular exercise in relation to the function of the circulatory system, while the role of exercise in the primary prevention and rehabilitation of cardiovascular disorders is stressed. The basic principles for the designing of cardiovascular adaptation programmes are analysed, as well as the protocols for the prevention and rehabilitation of cardiac diseases. Finally, the planning of fitness improvement programmes for persons with vascular diseases and metabolic disorders, such as diabetes and metabolic syndrome, is taught, with special emphasis on improving the aerobic capacity and the strength of the musculoskeletal system. After completing the course the students should be able to: • Assess the basic parameters of the functional capacity of the circulatory system. • Understand in detail the design methodology of preventive cardiovascular adaptation programmes cardiovascular rehabilitation programmes and to apply the basic planning principles for exer programmes in cooperation with patients, after obtaining their written informed consent. • Cooperate with other health professional when necessary (multidisciplinary meetings
General Competences - Learning Outcomes
• Decision making • Independent work • Teamwork • Work in an interdisciplinary environment • Adaptation to new situations • Design and application of basic principles in clinical physiotherapy intervention in both outpatient and operated patients with musculoskeletal problems and injuries • Production of new research ideas.

(3) MODULE CONTENT

Theoretical

- Degree and severity of the issue of cardiovascular diseases. Epidemiological data. Evidence for the necessity of planning prevention and rehabilitation problems. Elements of pathophysiology.
- Energy bais of physical work and exercise. Aerobic metabolism – anaerobic glucolysis. Aerobic exercise – strengthening programme. Functional capacity of the circulatory system.
- Adaptation of cardiovascular function to exercise. Economy of myocardial work. Heart rate. Arterial pressure, double product.
- Assessment of the economy of myocardial work. Immediate and long-term effects of exercise on the economy of myocardial work.
- Adaptation of cardiovascular function to exercise. Performance of the circulatory system. Stroke volume, cardiac output, oxygen intake.
- Assessment of the performance of the circulatory system. Maximal oxygen intake. Immediate and long-term effects of exercise on the performance of the circulatory system.
- Assessment of the functional capacity of the circulatory system. Maximal exercise stress test. Cardiopulmonary stress test. Utilisation of stress test data for the planning of cardiovascular adaptation programmes.
- Design and organisation methodology of cardiovascular adaptation programmes. Basic exercise design principles.
- Primary prevention of cardiovascular diseases. Planning of exercise programmes.
- Secondary prevention of cardiovascular diseases. Planning of rehabilitation programmes.
- Secondary prevention of cardiovascular diseases. Planning of rehabilitation programmes. Physiotherapy in the intensive care unit.
- Planning of special rehabilitation programmes for patients with coronary disease, for patients who have undergone bypass surgery, for patients with heart failure and for patients who have undergone heart transplantation.
- Physiotherapeutic assessment and treatment of peripheral vascular diseases.
- Planning of special rehabilitation programmes for patients with metabolic diseases and disorders, such as diabetes and metabolic syndrome.
- Assessment and treatment of cardiovascular patients with orthopaedic, neurological and other problems.

Practical

- Functional assessment of the cardiovascular patient.
- Heart rate measurement and assessment techniques.
- Arterial pressure measurement and assessment techniques.
- Assessment of pulse waves.
- Assessment of clinical symptoms of the cardiovascular patient.
- Techniques of assessing the economy of myocardial work.
- Techniques of assessing the performance of the circulatory system.
- Physiotherapeutic treatment of the cardiovascular patient. Stage I (patients with myocardial infarction, ischaemic cardiopathy, etc.).
- Physiotherapeutic treatment of cardiovascular diseases. Stages II, III.
- Planning of exercise programmes for vascular problems. Peripheral arteriopathies.
- Planning of exercise programmes for vascular problems. Venous thrombosis – Phlebitis.
- Planning of exercise programmes for metabolic diseases, such as diabetes and metabolic syndrome.
- Physiotherapeutic treatment of cardiovascular patients with accompanying musculoskeletal, neurological and other problems.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity a**	**Semester workload**
	Theoretical part Presentations and lectures using audiovisual media	70
	Theoretical part Use of the e-class for posting and distributing scientific articles, clinical guidelines, lectures, useful links, questionnaires, information concerning conference attendance information, etc.	10
	Theoretical part Visiting speakers after approval by the Department of Physiotherapy.	10
	Laboratory part Practice of students in laboratory and clinical assessment of cardiovascular function and exercise planning.	20

	Laboratory Part Teaching PT Assessment and Design of PT Rehabilitation in Clinical Incidents.	20
	Laboratory Part Training students in completing evaluation and progress sheets of patient rehabilitation.	20
	Course Total	180
STUDENT ASSESSMENT	Theoretical part • Written final examination (50%), which may include: ✓ Multiple choice test ✓ Short Answer or Short Growth Questions ✓ Role analysis in short case studies ✓ Problem solving related to quantitative data of load, time, cost ✓ Comparative assessment of theory elements Laboratory part (50%): • Continuous assessment of students throughout the semester with laboratory exercises or questions about what has been learned • Final examination of all the material taught	

(5) RECOMMENTED READING

Suggested reading:

- *Νανάς Σ: Αλγόριθμοι στην Καρδιοπνευμονική Αναζωογόνηση. Αθήνα: Εκδόσεις Αθ. Σταμούλης, 2006.*
- *Νανάς Σ: Καρδιοαναπνευστική Δοκιμασία Κοπώσεως και Προγράμματα Καρδιοαναπνευστικής Αποκατάστασης. Αθήνα: Εκδόσεις Αθ. Σταμούλης, 2006.*
- *Παπαθανασίου Γ. Ομάδα Εργασίας της ΕΕΕΦ για την Πρόληψη και Αποκατάσταση των Καρδιοαγγειακών και Αναπνευστικών Παθήσεων. Αποκατάσταση Καρδιοαγγειακών Παθήσεων. Βασικές Αρχές Σχεδιασμού Προγραμμάτων Άσκησης. Θέματα Φυσικοθεραπείας – Physiotherapy Issues. 2006; 4(3):6-12.*
- *American Association of Cardiovascular and Pulmonary Rehabilitation: Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs. 5th Edition. Champagne, IL: Human Kinetics, 2013.*
- *American College of Cardiology / American Heart Association: Gibbons RJ, et al. ACC/AHA 2002 Guideline Update for Exercise Testing. Circulation. 2002; 106:1883-1892.*
- *American College of Sports Medicine - American Heart Association. Physical Activity and Public Health: Updated Recommendation for Adults. Circulation. 2007; 116:1081-1093.*
- *American College of Sports Medicine: ACSM`s Guidelines for Exercise Testing and Prescription. Wolters Kluwer/ Lippincott Williams & Wilkins, 9th Edition, 2013.*
- *American College of Sports Medicine: ACSM`s Resource Manual for Guidelines for Exercise Testing and Prescription. Wolters Kluwer/ Lippincott Williams & Wilkins, 7th Edition, 2013.*

- *American Heart Association: A Scientific Statement. Williams MA, et al. Resistance Exercise in Individuals With and Without Cardiovascular Disease: 2007 Update. A Scientific Statement. Circulation. 2007; 116:572-584.*
- *American Heart Association: A Scientific Statement. Balady GJ, et al. Clinician's Guide to Cardiopulmonary Exercise Testing in Adults: A Scientific Statement. Circulation. 2010; 122:191-225.*
- *American Heart Association: A Scientific Statement. Thompson PD, et al. Exercise and Physical Activity in the Prevention and Treatment of Atherosclerotic Cardiovascular Disease. Circulation. 2003; 107:3109-3116.*
- *American Heart Association: A Statement for Healthcare Professionals. Balady GJ, et al. Core Components of Cardiac Rehabilitation/Secondary Prevention Programs. Circulation. 2000; 102:1069-1073.*
- *American Heart Association: A Statement for Professionals. Lauer M, et al. Exercise Testing in Asymptomatic Adults. Circulation. 2005; 112:771-776.*
- *Astrand PO, Rodahl K, Dahl HA, et al. Textbook of work physiology. Physiological basis of Exercise. 4th Edition. Champagne, IL: Human Kinetics, 2003.*
- *Charakida M, Masi S, Deanfield JE. The Year in Cardiology 2012: Focus on cardiovascular disease prevention. European Heart Journal. 2013; 34(4):314-317.*
- *European Association for Cardiovascular Prevention and Rehabilitation. Piepoli MF, Cora U, Benzer W, et al. Secondary Prevention through Cardiac Rehabilitation. A Position Paper from the Cardiac Rehabilitation Section. European Journal of Cardiovascular Prevention and Rehabilitation. 2010; 17:1-17.*
- *European Association for Cardiovascular Prevention and Rehabilitation. Perk G, Baker GD, Gohlke H, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). European Journal of Preventive Cardiology. 2012; 19:585-667.*
- *European Society of Cardiology Guidelines. Tendera M, et al. Diagnosis and Treatment of Peripheral Artery Diseases. European Heart Journal. 2011; 32:2851–2906.*
- *Muller-Riemenschneidera F, Meinhard C, Damm K, et al. Effectiveness of nonpharmacological secondary prevention of coronary heart disease. European Journal of Cardiovascular Prevention and Rehabilitation. 2010; 17:688-700.*
- *Papathanasiou G, Tsamis N, Georgiadou P, Adamopoulos S. Beneficial Effects of Physical Training and Methodology of Exercise Prescription in Patients with Heart Failure. Hellenic Journal of Cardiology. 2008; 49:267-277.*

Module Outline of 'Physiotherapy Assessment – Clinical Reasoning'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDERGRADUATE		
MODULE CODE	P1-4050	SEMESTER	4th
MODULE TITLE	PHYSIOTHERAPY ASSESSMENT – CLINICAL REASONING		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures, practicals, educational visits, projects and clinical training	2	
Practice	1	
Total	3	4

MODULE TYPE	Special Core Course
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE:	Greek
MODULE SUITABLE for ERASMUS STUDENTS	
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The aim of the course is for the student to understand how to assess patients using both the appropriate clinical tools and cutting edge technology, and how to record the findings, in order to design an appropriate therapy plan. Using the principles of clinical reasoning this course aims to assist future physiotherapists in making the right decision.

After the completion of the course the students:

- Will understand the concept and the process of clinical/professional reasoning in physiotherapy and how it relates to decision making
- Will be able to apply the process of reflection during the practice of physiotherapy
- Will gain the ability to conduct a systematic assessment of a patient and discern the various problems arising from various systems
- Will be able to use 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.
- Will be able to complete a differential diagnosis of their patients, detect comorbidities and suggest evidence-based and effective treatment protocols in complex cases.
- Will be able to interpret, analyze, compile and judge the research results related to the

problem under investigation

- Will be able to 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

General Competences - Learning Outcomes

- Data collection and analysis
- Compile information, design intervention plan and decision making
- Individual work
- Team work
- Work in multi-disciplinary environment
- Respect diversity and multiculturalism
- Demonstrate social professional and ethical responsibility, as well as sensitivity to medical confidentiality and special populations
- Observe and develop new techniques, or modify existing
- Evaluation and self-evaluation through the process of reflection
- Develop new research ideas

(3) MODULE CONTENT

Theoretical part

- Definition of the concept and process of clinical reasoning. Models of clinical/professional reasoning. Clinical reasoning and decision making.
- The concept, the procedure and the meaning of reflection in clinical reasoning. Models of reflection. Types of clinical reasoning: Scientific (diagnostical, procedural), narrative, interactive, pragmatic, ethical, conditional. Levels and ways to develop clinical reasoning (develop/organize knowledge, reflection).
- Physiotherapy assessment – History taking: History taking from the patient: what it includes, how it is implemented. Detailed analysis of parameters, such as family history, history of present illness, medical history of the patient, factors for improvement/decline, etc. as well as the perception of pain by the patient (severity, frequency, duration, variance during the day, etc.). Assessment with questionnaires, scales and/or indices adapted to Greek patients and evidence-based. Examples of applications.
- Physiotherapy assessment – clinical examination: process, recording findings like ROM, strength, endurance, muscle performance, local sensitivity to palpation, anthropometrics, degree of arousal, posture, gait, balance, patient psychology, motor control, sensory control, neural tension, reflexes, etc., with simple motor tests. Use of high tech for detailed recording

or for research purposes. Electrogoniometers for ROM, motion analysis, force platforms and plantar pressure measurements for recording forces and moments, dynamometers for recording muscle performance and work, EMG for recording muscle functional parameters, optometrics and video analysis for kinematic motion analysis, balance platforms for recording proprioception, diagnostic ultrasound for the quantification of parameters like muscle hypertrophy, degree of edema and for proper guiding of acupuncture needles to the target tissues.

- Clinical reasoning as a process for therapeutic decision making. General principles and developing clinical reasoning which will lead to making right decisions about the pathological causes of the problem and about the therapeutic option. Literature and research support go the therapeutic choices (evidence-based physiotherapy). Develop a rationale for the application of adjunct therapies, like acupuncture, dry needling, reflexive therapies (auriculoacupuncture, electroacupuncture, etc.), and for evaluating the result.
- Apply clinical reasoning to problems relative to more than one body system. Assess the problem and make a differential diagnosis when findings from the musculoskeletal system, the nervous system, the skin, liver, pancreas, hair, nails, blood vessels, blood, immune system, genitourinary system, pulmonary system, etc., coexist. Combining therapeutic options with adjunct/complementary therapies like acupuncture-dry needling, reflex therapy, auriculoacupuncture, craniosacral therapy, etc.
- Examples in the form of case studies. Assess findings that may be grounds for immediate medical referral (red flags, yellow flags, etc.). Assess the risks and safety of therapeutic techniques and the possible gain in relation to the risks the patient will be subjected to with the use of advanced techniques, like acupuncture, dry needling, hyperthermy (Tecar), high intensity electromagnetic radiation (diamagnetic pump) and phototherapy (laser), etc.
- Principles for the selection of methods, techniques and modalities based on evidence-based practice. Indications for the application of protocols of advanced physiotherapy techniques like hyperthermy (Tecar), radio frequencies (RF), high intensity electromagnetic fields (diamagnetic pump), high intensity laser, as well as adjunct/complementary physiotherapy techniques, like acupuncture, electro- and auriculoacupuncture and dry needling. Setting the short- and long-term goals for a particular problem at a given time. Continuous reassessment of goals and results.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>DELIVERY</td><td>Physical presence.</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>70</td></tr>
<tr><td>Practical exercises</td><td>10</td></tr>
<tr><td>Study and analysis of the literature</td><td>10</td></tr>
<tr><td>Submission of a individual or team project</td><td>20</td></tr>
<tr><td>Educational visits</td><td>10</td></tr>
<tr><td>Total</td><td>120</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Final written examination (100%), which may include:
✓ Multiple choice questions
✓ Short answer or short essay-type questions
✓ Analysis of a clinical case
✓ Oral examination (choice cases)

By student consent the final assessment may by supplemented by
✓ Individual or team projects
✓ Presentation of a clinical case
✓ Oral examination in practical issues or in clinical environment
✓ Participation in a research activity (data collection, recording of findings, processing, etc.)</td></tr>
</table>

(5) RECOMMENDED READING

Suggested reading

- *Brotzman SB, Manske RC. Clinical Orthopaedic Rehabilitation. 3rd Edition. Philadelphia, PA: Mosby, 2011.*
- *Brotzman SB, Wilk KE. Handbook of Orthopaedic Rehabilitation. Philadelphia, PA: Mosby, 2007.*
- *Canale T, Beaty J. Campbell's Operative Orthopaedics. 12th Edition. London: Mosby, 2013.*
- *Donatelli R, Wooden M. Orthopaedic Physical Therapy. 4th Edition. Philadelphia, PA: Churchill Livingstone, 2009.*
- *Hoppenfeld S: Ορθοπεδική Νευρολογία. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.*
- *Hoppenfield S. Φυσική εξέταση της σπονδυλικής στήλης και των άκρων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.*

- *Kisner C, Colby L. Therapeutic Exercise: Foundations and Techniques. 6th edition. Philadelphia: Published by DavisPlus, 2012.*
- *Magee DJ. Orthopedic Physical Assessment. 5th Edition. Philadelphia, PA: W.B Saunders, 2008.*
- *McRae R, Esser M. Practical Fracture Treatment. 5th Edition. Edinburgh: Churchill Livingstone, 2008. Ελληνική έκδοση: Σουκάκος Π, Βλάσης Κ, Νάτσης Κ. Κλινική Αντιμετώπιση Καταγμάτων. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2008.*
- *Miller M, Hart J. Review of Orthopaedics. 6th Edition. Philadelphia, PA: Saunders Elsevier, 2012. Ελληνική Έκδοση: Μπάμπης Γ. Review Ορθοπαιδικής. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.*
- *Petty J. Nichola. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists*
- *Snyder G. Differential diagnosis for physical therapists. 5th Edition. Edinburgh: Saunders Elsevier, 2012*
- *Solomon L, Warwick D and Nayagam S. Apley's System of Orthopaedics and Fractures. 9th edition.*
- *Oxford: Taylor & Francis Group, 2013*

Module Outline of 'Research Methods'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDIY LEVEL	UNDERGRADUATE		
MODULE CODE	P1-4060	SEMESTER	4th
MODULE TITLE	RESEARCH METHODS		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
	Theory – practical	3	4
MODULE TYPE	Special Core Module		
PRE-REQUIRED MODULES			
TEACHING AND EXAMINATION LANGUAGE:	Greek		
SUITABLE for ERASMUS STUDENTS	Yes (English)		
MODULE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The course aims to familiarize students with the research methodology in the field of sciences in general, and in particular in the field of health sciences and to describe the basic methodology and scientific information research principles. Also, to guide students to develop skills, in order to actively participate in scientific research, and especially to form research questions, to investigate research fields, statistical concepts, review the literature and develop a scientific protocol and regime. Emphasis is placed on the necessary types of research methodology for answering clinical investigation questions relative to physiotherapy and for comprehending the importance of ethics in conducting a research
The student, after the successful completion of the course, will be able to:

- Recognize the necessity (aims and objectives) of research in clinical practice and in physiotherapy.
- Comprehend the basic principles and the steps for the conduction of a research (qualitative or quantitative).
- Implement the proper research design and protocol for the investigation of a research question
- Recognize basic concepts of descriptive statistics, like the mean, mean value, standard deviation, standard error, kurtosis, etc. and how to use them in a research
- Identify the problems and threats in research literature and how to assess them
- Follow the ethics in conducting a research
- Recognize the importance of the reliability and validity concepts both in research and in clinical practice

- Know how to compose and scientific article and how to present the research results
- Know and use up to date means and methods to conduct a scientific research
- Use the international databases for seeking information in the field of health sciences
- Use various statistical software for entering and analyzing research data

Present the research results through the use of IT

General Competences - Learning Outcomes

- Seek, analyze and compose data and information through the use of necessary technology (internet, database, software, etc.).
- Decision making
- Individual work
- Team work
- Work in a multi-disciplinary environment
- Developing new research ideas
- Evaluation and self-evaluation
- Developing free creative and deducting thinking
- Develop skills of written and oral presentation of scientific knowledge.

(3) MODULE CONTENT

- **Introduction, concepts and types of research**

  Introduction to research in health sciences – physiotherapy. Scientific and nonscientific methods for problem solving. Types of research. Qualitative-quantitative research. Internet in the service of science.
  Practical: Primary and secondary sources for searching information I. Practical application in general search engines (Google Scholar, Yahoo, etc.). Search engines for articles and books in the Greek Libraries net. Examples and applications. Individual/team projects and guidelines.
- **Information sources – Reviewing articles and books**

  Search literature in electronic or non- media. Sources of search information and databases. Strategies for searching information.
  Practical: Primary and secondary sources for searching information II. Practical application in the internet with specialized search engines (Medline, Pubmed, EMBASE, AMED, Ocvid, Sport Discus, etc.). Search strategies for randomize clinical and other trials (RCTs, CCts, etc.). Examples and applications. Student guidance.
- **Research design – Research protocols**

  Research problem. Research proposal. Research hypothesis. Pilot study. Research protocol.
  Practical: Demonstration and use of statistical packages software. SPSS statistical program. Excel.MedCalc. Examples and applications.
- **Sampling**

  Accessing the population and selection of a sample. Sampling methodology. Selection and rejection criteria in a sample.
  Practical: Creating tables and graphs with a computer. Demonstration and application with the

aid of statistical programs (SPSS, Excel, MedCalc,etc.). How to present research results with the aid of a computer. Examples and applications.

- **Reliability and validity principles**

  Reliability of measurement tools. Reliability types (test-retest, coherence, stability). Validity types in research (face, construct, criterion-related, etc.).
  Practical: Demonstration and learning to use statistical tests. Parametric tests. Non parametric tests. Testing for reliability and validity. Examples and applications.

- **Experimental-quantitative research in physiotherapy I**

  Research threats. Internal and external validity. Types of research design.
  Practical: Conducting a "hypothetical" research I. Searching for information in databases. Formulation of research hypothesis. Examples and applications.

- **Experimental-quantitative research in physiotherapy II**

  Methods of data collection – scientific tools. Variables (independent – dependent, confounding). Measurement scales.
  Practical: Conducting a "hypothetical" research II. Formulating a research protocol. Research procedure. Examples and applications.

- **Statistical analysis and interpretation of results**

  Parametric and non-parametric data. Basic statistical procedures for data analysis. Descriptive statistics. Errors in research.

- *Practical*: Conducting a "hypothetical" research III. Coding and data entry in spreadsheets of statistical packages. Data analysis. Examples and applications.

- **Qualitative-descriptive research in physiotherapy – questionnaires- interviews**

  Procedure for conducting qualitative research. Internal and external validity in qualitative research. Means for data collection. Constructing a questionnaire – ordinal scales. Correlational research. Case study.
  Practical: Completing a questionnaire. Coding and computer data entry. Constructing a questionnaire. Entry and data coding. Data entry in statistical programs. Data analysis and from questionnaires. Examples and applications. Submitting individual projects for assessment.

- **Systematic review-meta analysis**

  What is a systematic review and a meta-analysis? Cochrane collaboration. Procedure for conducting a systematic review and a meta-analysis. Information searching strategies for a systematic review.
  Practical: Creating a presentation with Powerpoint slides. Types or oral presentation of research results with Powerpoint. Creating a Powerpoint presentation. Creating transparencies on a transparency viewer. Examples and application.

- **Presentation of research results – writing an article – oral presentation – poster**

  Basic instruction on how to write a scientific paper. Procedure for article publication. Types and basic principles for presenting research results. Types and systems for writing references.
  Practical: Writing a scientific article – publication procedure. Demonstration of key points for writing a scientific article. Demonstration and implementation of software for writing the references (Reference Manager, EndNote, etc.). Types of writing the names of authors of scientific article. Writing a letter to the editor. Examples and applications.

- **Ethics**

  Categories of scientific deceit. Ethics issues and copywrite. Plagiarism. Protecting the participants in a research. Consent forms for participating in a study. Protecting experimental

animals.
Practical: Writing a poster. Demonstrationa and creating a poster in a computer with specialized software (Powerpoitn, Office Publisher, etc.). Examples and applications.

- **Reviewing an article**

Hierarchy of scientific evidence based review. Key points of reviewing an article. Recognizing threats in publicized studies in physiotherapy.
Practical: Reviewing publicized studies. Critical analysis of an articles in teams. Examples and applications. Submission – presentation – evaluation of team projects.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence.
USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)	Open e-class platform
TEACHING ORGANIZATION	***Activity*** / ***Semester workload*** Lectures: 78 Practical: 13 Team projects: 13 Individual projects: 6 Total: 120
STUDENT ASSESSMENT	• Final written examination (60%), which may include: ✓ Multiple choice questions ✓ Short answer questions or essay type questions about the definitions and concepts of research methodology ✓ Multiple choice questions, short answer questions or essay type questions about reviewing articles-studies • Submission of individual project (10%) ✓ Submission and presentation of team project (30%) There will be a questions' bank with the questions of previous examinations and projects.

(5) RECOMMENDED READING

Suggested reading

- *Batavia M. Clinical Research for Health Professionals. A User Friendly Guide. Butterworth - Heinemann, 2001.*
- *Bork CE. Research in Physical Therapy. Philadelphia PA: J.B Lippincott Co, 1993.*
- *Bowling A. Research Methods in Health: Investigating Health and Health Services. 3rd*

Edition. Buckingham – Philadelphia: Open University Press, 2009. (Μεθοδολογία Έρευνας στην Υγεία. Εκδόσεις Πασχαλίδης 2013.)

- *Carter R, Lubinsky J, Domholdt E. Rehabilitation Research. Principles and Applications. 4th Edition. St. Louis, MO: Elsevier Saunders, 2010.*
- *Currier DP. Elements of Research in Physical Therapy. 3rd Edition. Baltimore MD: Williams and Wilkins, 1990.*
- *Domholdt E, Carter DR, Lubinsky J. Physical Therapy Research: Principles and Applications. 4th Edition. St. Louis, MO: Saunders, 2010.*
- *French S. Practical Research, Εκδόσεις Butterworth-Heinemann 1993.*
- *Hicks C. Research For Physiotherapist , Εκδόσεις Churchill Livingstone 1999.*
- *Howard, Sharp J.A. : Η Επιστημονική Μελέτη, Guttenberg, Αθήνα, 1994.*
- *Payton OD, Sullivan MS. Research: The Validation of Clinical Practice. 4th Edition. Philadelphia PA: F.A. Davis, 2005.*
- *Portney LG, Watkins MP. Foundations of Clinical Research: Applications to Practice. 3rd Edition. Upper Saddle River NJ: Pearson/Prentice Hall, 2008.*
- *Sim J, Wright C. Research in Health Care. United Kingdom: Nelson Thornes, 2002.*
- *Thomas, J., Nelson, J. Μέθοδοι Έρευνας Στη Φυσική Δραστηριότητα, Εκδόσεις Πασχαλίδη 2013.*
- *Γέμπτος Π.: Μεθοδολογία των Κοινωνικών Επιστημών, Εκδόσεις Παπαζήσης, 1991.*
- *Δαρβίρη Χρ. Μεθοδολογία Έρευνας στο χώρο της υγείας. Εκδόσεις Πασχαλίδη 2009.*
- *Δημητρόπουλος Ε. Εισαγωγή Στη Μεθοδολογία Της Επιστημονικής Έρευνας, Εκδόσεις Έλλην, 2001.*
- *Καμπίτσης Χ. Η Έρευνα Στις Αθλητικές Επιστήμες, Εκδόσεις Τσαρτσιάνης Θεσσαλονίκη, 2004.*
- *Παναγιωτάκος Δημ. Μεθοδολογία της έρευνας και της Ανάλυσης Δεδομένων για τις Επιστήμες της Υγείας, Εκδόσεις Μ. Τσακαρίδου & Σια ΟΕ 2011.*
- *Παρασκευόπουλου, Ι. Μεθοδολογία Επιστημονικής Έρευνας, Αθήνα 1993.*
- *Σαχίνη Καρδάση Α: Μεθοδολογία Της Έρευνας. Εφαρμογή στο χώρο της υγείας, Εκδόσεις ΒΗΤΑ 1996.*
- *Σαχίνη Α, Καρδάση Α. Μεθοδολογία Έρευνας στα Επαγγέλματα Υγείας. 3η Έκδοση. Αθήνα: Εκδόσεις Βήτα, 2007*

Related scientific journals

- *Quality of Life Research*
- *Trials*
- *BMC Medical Research Methodology*
- *Journal of Medical Ethics*

5th SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	CLINICAL TRAINING IN RESPIRATORY AND CARDIOVASCULAR PHYSIOTHERAPY	SM	П1-5010	3	150	8	150	11	300	300	10
2	PHYSIOTHERAPY IN PAEDIATRIC NEUROLOGICAL DISEASES	SM	П1-5020	3	120	2	90	5	210	210	7
3	PHYSIOTHERPAY IN MUSCULOSKELETAL PATHOLOGY AND DISEASES	SM	П1-5030	3	120	2	90	5	210	210	7
4	MANUAL THERAPY	SM	П1-5040	3	90	2	90	5	180	180	6
TOTAL				**12**	**480**	**14**	**420**	**26**	**900**	**900**	**30**

Module Outline of 'CLINICAL TRAINING IN RESPIRATORY AND CARDIOVASCULAR PHYSIOTHERAPY

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-5010	**Semester**	**5th**
Module Title	Clinical Training in Respiratory and Cardiovascular Physiotherapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	3	6
Clinical Training	8	4
Total	11	10

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
Clinical Training in Respiratory and Cardiovascular Physiotherapy is conducted with students rotating to Pulmonary, Cardiac Surgery, Surgery and Thoracic Surgery Clinics, in Intensive Care Units - ICU, in Cystic Fibrosis Clinic, in Pulmonary Rehabilitation Clinic and in Outpatient Asthma Clinic:

Upon completion of the course, students will be able to:

- Approach the respiratory patient and develop a cooperative / trusting relationship with him
- Associate theory with evidence-based knowledge in clinical practice
- Recognize, understand, and manage the findings of the assessment of the respiratory and surgical patient in the clinical setting, through integrated clinical reasoning
- Share the results of the assessment with other healthcare professionals involved in treating the same patient
- Understand the variety of options in clinical practice, combining scientific evidence with the capabilities of each patient individually
- Identify and set realistic short-term and long-term goals of physiotherapy intervention
- Choose appropriate and safe therapeutic means / techniques
- Apply specific individualized respiratory physiotherapy interventions to chronically ill and severely ill patients and acquire appropriate management skills for these patients.
- Take responsibility and make decisions on unforeseen events.
- Reassess the selected therapeutic intervention by identifying signs of improvement or deterioration in the clinical picture of the respiratory and surgical patient
- Apply ethical and bioethical rules

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Teamwork
- Work in an interdisciplinary environment
- Design and management of physiotherapeutic interventions

(3) MODULE CONTENT

- Determine the role of the Respiratory Physiotherapist in the clinical setting
- Behavioral change theories: Health belief model, Trans-theoretical model, Planned behavior theory. Evidence base on the application of these theories to respiratory diseases.
- Assessment tools and devices / equipment in Respiratory Physiotherapy (spirometer, oximeter, maximal inspiratory pressure meter-MIP, maximal expiratory pressure meter-MEP, capnograph, bronchial secreting devices, NIV device, resuscitation bag, oxygen dispensers, suction device, incentive spirometers, flowmeter, inhalers for children and adults, etc.). Familiarizing students with their use.
- Respiratory Failure - Mechanical Ventilation - Non-Invasive Ventilation (NIV) and clinical application. NIV Clinical Laboratory.
- The effect of respiratory physiotherapy on acid-base balance, clinical case analysis.
- Oxygen therapy in chronic respiratory patients and severely ill patients. Clinical application and regulation of oxygen therapy devices.
- Analysis and management of clinical cases of obstructive pulmonary disease: Assessment, clinical reasoning, and individualized intervention planning.
- Pulmonary Rehabilitation: Assessment, Inclusion-Exclusion criteria, Standardized aerobic exercise programs and strengthening programs of respiratory and peripheral Muscles. Clinical case management.
- Assessment, clinical reasoning, and individualized management of thoracic-abdominal surgery (heart-lung-upper abdominal) cases.
- Assessment, clinical reasoning and individualized management of clinical cases with: pleural diseases, spine and rib cage deformities and pulmonary parenchymal diseases.
- Clinical Training in the suction of bronchial secretions in severely ill patients.
- Assessment, clinical reasoning, and individualized physiotherapy management of severely ill clinical cases.
- Assessment, clinical reasoning, and individualized management of ICU patients with: VAP-related pneumonia, atelectasis, neuromuscular syndrome, postoperative complications, traumatic brain injuries, spinal and spinal cord injuries, flail chest, extensive burns, pulmonary embolism, etc.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

Delivery	Face to Face	
Use of Information and Communication Technology (ICT)	Open e-class platform	
Teaching Organization	**Activity**	**Semester Workload**
	Lectures	150
	Laboratory training in hospital clinical settings	150
	Total	**300**

Student Assessment	The theoretical part of the course (50%) is assessed with: • Written final examination (70%) with questionnaires of all material (multiple choice questions, right-wrong questions, fill-in-the-blank and text development) • Teamwork presentation (30%) The laboratory part is evaluated daily on patient cases to assess the adequacy of the skills acquired by the students (50%).

(5) SUGGESTED READING

Suggested Reading:

Γραμματοπούλου Ε. Φυσικοθεραπευτικές Τεχνικές και Μέθοδοι Αξιολόγησης στις Αναπνευστικές Παθήσεις. Αθήνα: Εκδόσεις Κωσταντάρας,2017.

AACVPR. Κατευθυντήριες οδηγίες για τα προγράμματα Πνευμονικής Αποκατάστασης. Επιμέλεια: Γραμματοπούλου Ε., Σκορδίλης Ε. Αθήνα: Εκδόσεις Πεδίο, 2015.

Μυριανθεύς Π, Μπαλτόπουλος Γ. Μηχανική υποστήριξη της αναπνοής. Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2005.

Wilson LM, Morrison L, Robinson KA. Airway clearance techniques for cystic fibrosis: an overview of Cochrane systematic reviews. Cochrane Database of Systematic Reviews 2019, Issue 1. Art. No.: CD011231. DOI: 10.1002/14651858.CD011231.pub2.

Gkaraveli M, Skordilis E, Grammatopoulou E, Karteroliotis K, Dania A, Morfis P and Fildisis G. The Effect of Inspiratory Muscle Training on Respiratory Pressure, Pulmonary Function and Walking Ability in Preschool Children with Cerebral Palsy. Annals of Physiotherapy Clinics. 2019; 2(1): 1-8.

Grammatopoulou E, Skordilis E, Haniotou A, Zarotis J, Athanasopoulos S. The effect of a holistic self-management plan on asthma control. Physiotherapy Theory and Practice 2017; 33:622-633.

Radtke T, Nevitt SJ, Hebestreit H, Kriemler S. Physical exercise training for cystic fibrosis. Cochrane Database of Systematic Reviews 2017, Issue 11. Art. No.: CD002768. DOI: 10.1002/14651858.CD002768.pub4.

Grammatopoulou E, Charmpas T, Strati E, et al. The scope of physiotherapy services provided in public ICUs in Athens, Greece. Physiotherapy Theory and Practice. 2017; 33: 1-9.

Belimpasaki V, Grammatopoulou E, Haniotou A, et al. Asthma Control, and the Implementation of Asthma Management Guidelines in Greece: A Pilot Study. CHEST 2015;148 (4_MeetingAbstracts), 707A-707A.

Evangelodimou A, Grammatopoulou E, Skordilis E, Haniotou A. The Effect of Diaphragmatic Breathing on Dyspnea and Exercise Tolerance During Exercise in COPD Patients. CHEST 2015;148 (4_MeetingAbstracts), 704A-704A.

Grammatopoulou E, Nikolovgenis N, Skordilis E, et al. Validity and reliability of general self-efficacy scale in asthma patients. European Respiratory Journal. 2014; (S58): 4314.

Myrianthefs P, Grammatopoulou E, Katsoulas T, Baltopoulos G. Spirometry may underestimate airway obstruction in professional Greek athletes. The Clinical Respiratory Journal. 2014; 8: 240–247.

Bissett B, Leditschke IA, Paratz JD, et al. Respiratory dysfunction in ventilated patients: Can inspiratory muscle training help? Anesth Intensive Care. 2012; 40:236-246.

Grammatopoulou E, Skordilis E, Evangelodimou A, et al. Adequate physical activity in students with and

without asthma. European Respiratory Journal. 2012; 40(S56):144.

Schweickert A, William D, Kress JP. Implementing Early Mobilization Interventions in Mechanically Ventilated Patients in the ICU Early Mobilization in the ICU. Chest. 2011; 6:1612-1617.

Moodie LH, Reeve JC, Vermeulen N, et al. Inspiratory muscle training to facilitate weaning from mechanical ventilation: Protocol for a systematic review. BMC Research Notes. 2011; 4:283.

Cader SA, Vale RG, Castro JC, et al. Inspiratory muscle training improves maximal inspiratory pressure and may assist weaning in older intubated patients: A randomized trial. J Physiother. 2010; 56:171-177.

Grammatopoulou E, Belimpasaki V, Valalas A, et al. Active Cycle of Breathing Techniques-ACBT contributes to pain reduction in patients with rib fractures. Hellenic Journal of Surgery. 2010; 82:42-47.

Grammatopoulou E, Haniotou A, Douka G, et al. Factors associated with BMI in Greek adults with asthma. Journal of Asthma. 2010; 47:276-280.

Daniels T. Physiotherapeutic management strategies for the treatment of cystic fibrosis in adults. Journal of Multidisciplinary Healthcare. 2010; 3:201–212.

Reeve J. Physiotherapy interventions to prevent postoperative pulmonary complications following lung resection. What is the evidence? What is the practice? New Zealand Journal of Physiotherapy. 2008; 36(3):118-130.

Stiller K. Safety issues that should be considered when mobilizing critically ill patients. Critical Care Clin. 2007; 23:35- 37.

Stiller K. Physiotherapy in intensive care towards an evidence-based practice. Chest. 2000; 118:1801-1813.

- *Related Journals:*
  - *Chest*
  - *Respiratory Medicine*
  - *Journal of Asthma*
  - *Quality of Life Research*
  - *American Journal of Critical Care Medicine*
  - *American Journal of Critical Care*
  - *American Journal of Critical Care Nursing*
  - *Physiotherapy Theory and Practice*

Module Outline of 'Neurological Physiotherapy in Paediatrics

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-5020	**Semester**	5th
Module Title	**Neurological Physiotherapy in Paediatrics**		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (lectures)	3	**7**
Laboratory (laboratory exercises and clinical training)	2	
Total	5	

Module Type	Specialty Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	YES (English), undertaking an essay
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The module Neurological Physiotherapy in Paediatrics is a basic course for preparing students for the module CLINICAL TRAINING NEUROLOGICAL PHYSIOTHERAPY.

The module content aims to provide students with the theoretical knowledge and special methods necessary for the physical therapy of children with cerebral palsy (CP), meningomyelocele and congenital diseases. Specifically, methods and techniques for resolving problems in children with neurological diseases (such as motor impairment, muscle tone dysfunction, balance and gait disorders) and functional limitations are analyzed, as well as the assessment scales for these parameters. For each disease, the procedure for examining and evaluating the pediatric patient's clinical signs and symptoms is analyzed, the data are interpreted and, also, methodology for the planning of an effective intervention and its evidence base are analyzed.

After having successfully completed the module Neurological Physiotherapy for Children, students will be able to:

- Know the incidence, etiology and clinical picture of diseases and disorders.
- Describe the usual complications and associated deficits observed in children.
- Describe physiotherapeutic management and appropriate interventions in children with CP, myopathies, meningomyelocele, etc.
- Recognize the importance of Functional practice throughout the life of the child.
- Be able to specify the short- and long-term goals of physiotherapy intervention in pediatric patients.
- Know the conservative and surgical management of children with CP, meningomyelocele and congenital diseases.

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Group work
- Work in an interdisciplinary context
- Development new research ideas
- Plan and management of physiotherapeutic interventions

(3) MODULE CONTENT

- **Typical motor development** (normal/abnormal reflexes, evaluation of motor maturation).
- **Motor development in different types of CP**
- **Basic principles and handlings of PT intervention in CP** (positioning and physical handling interventions to facilitate movement, head and trunk control, control use of sensory stimuli to facilitate positioning and handling, adaptive equipment for positioning and locomotion).
- **Cerebral Palsy I** (etiology, classification, related deficits, ICF, mental retardation)
- **Cerebral Palsy II** (Physiotherapeutic Assessment, [GMFC, MACS etc.], Early Physiotherapeutic Intervention, home-based treatment of child with CP)
- **Cerebral Palsy III** (Surgical management, management of deformities, Physiotherapeutic interventions in childhood and adolescence, Halliwick concept).
- **Cerebral Palsy III** (gait analysis, orthotics, hand-held mobility devices, wheeled mobility,

communication devices).

- **Myelomeningocele** (incidence, etiology, clinical picture, musculoskeletal disorders, spinal deformities, hydrocephalus, other system disorders).
- **Myelomeningocele II** (Physiotherapeutic interventions, orthoses, PT intervention during school age, independent living, family training).
- **Congenital diseases I** (heredity, classification, Down syndrome, Cri-du-chat syndrome, Prader-Willi syndrome, arthrogryposis multiplex congenita, osteogenesis imperfecta, Fragile X syndrome, Rett syndrome, Phenylketonuria, PT intervention).
- **Congenital diseases II** (Spinal muscular atrophy, Duchenne muscular dystrophy, Becker muscular dystrophy, PT interventions, adaptive equipment).
- **Congenital diseases III** (Genetic disorders and mental retardation, psychomotor development, PT interventions).
- **Polyneuropathies** (classification, clinical approach, PT evaluation and management).

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	110
	Laboratory training and exercise	80
	Educational visits	10
	Submission of an individual or team project	10
	Total	**210**
STUDENT ASSESSMENT	**The theoretical part of the module** is assessed by final written examination (50%), which may include multiple choice questions, true-or-false questions, gap-filling and open-ended questions. **The laboratory part** is evaluated with continuous assessment of the students throughout the semester (with practical demonstration of assessment methods, therapeutic intervention planning and demonstration of physiotherapy techniques) (50%).	

(5) SUGGESTED READING

- Suggested Reading:
  - Martin and Kessler. Φυσικοθεραπευτικές Παρεμβάσεις σε Ασθενείς με Νευρολογικές Παθήσεις. Επιμέλεια ελληνικής Έκδοσης: Δάφνη Μπακαλίδου. Αθήνα. Εκδόσεις: Κωνσταντάρας-Ιατρικές εκδόσεις , 2015
  - Shepherd R.B. Εγκεφαλική Παράλυση στη Βρεφική Ηλικία: στοχευμένη

δραστηριότητα για τη βελτιστοποίηση της αρχικής σωματικής και κινητικής ανάπτυξης. Αθήνα: Εκδόσεις Healthaction, 2018

- Piper M.C., Darrah J. Αξιολόγηση της Κινητικής Εξέλιξης του Αναπτυσσόμενου Βρέφους. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2018
- Palisano R.J., Orlin M.N., Schreiber J. Campbell's Physical Therapy for Children. 5th Edition. Canada: Elsevier Ltd, 2016
- Tecklin J.S. Pediatric Physical Therapy. 5th edition. China: Lippincott Williams & Wilkins, 2015
- νLevitt S. Θεραπεία της Εγκεφαλικής Παράλυσης και της Κινητικής Καθυστέρησης. 5η έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2014
- Effgen S.K. Meeting the Physical Therapy Needs of Children. 2nd edition. Philadelphia: F.A. Davis Company, 2013
- Cech D.J., Martin S.T. Functional Movement Development: across the life span. 3rd edition. USA: Elsevier Ltd, 2012
- Danto A., Pruzansky M. 1001 Pediatric Treatment Activities: creative ideas for therapy sessions. USA: SLACK Incorporated, 2011
- Dodd K.J., Imms C., Taylor N.F. Physiotherapy and Occupational Therapy for People with Cerebral Palsy: a problem- based approach to assessment and management. London: Mac Keith Press, 2010
- Becker B.E., Cole A.J. Comprehensive Aquatic Therapy. 3rd edition. USA: Washington State University Publishing, 2010
- Bower E. Finnie's Handling the Youth Child with Cerebral Palsy at Home. 4th edition. UK: Elsevier Ltd, 2009
- Scrutton D., Damiano D., Mayston M. Αντιμετώπιση των Κινητικών Διαταραχών στα Παιδιά με Εγκεφαλική Παράλυση. 2nd edition. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2009
- Ο' Conor J., Yu E. Προοδεύοντας: ένα εγχειρίδιο εκπαίδευσης για παιδιά με κινητικά προβλήματα. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2001
- Campion M.R. Hydrotherapy: principles and practice. 2nd edition. UK: Butterworth-Heinemann, 2001

- Related scientific journals:
  - Developmental Medicine and Child Neurology
  - Neurorehabilitation
  - Pediatric Physical Therapy
  - Physical & Occupational Therapy in Pediatrics

Module Outline Of 'Musculoskeletal Physiotherapy in Disorders

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDERGRADUATE		
MODULE CODE	P1-5030	SEMESTER	5th
MODULE TITLE	**Musculoskeletal Physiotherapy in Disorders**		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures, practical, educational visits, projects and clinical training	5	7

MODULE TYPE	Special Core Course
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE:	Greek
MODULE SUITABLE for ERASMUS STUDENTS	Yes (English)
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course objectives are the study and comprehension of the physiotherapy assessment and treatment of musculoskeletal disorders, as they are defined according to the latest classification of Word Health Organization. The course aims for the student to develop the ability to assess a musculoskeletal disorder, by recording the findings and to design and implement the proper physiotherapy treatment to adults, children/adolescents after a conservative or surgical medical treatment. The theoretical part of the course is divided into sections that represent broader categories within each section some common clinical disorders are discussed. In the practical part each possible tissue-target in need of treatment is initially analyzed and treated in terms of physiotherapy assessment and treatment. Then, characteristic pathologies of the musculoskeletal system selectively from all body parts are discussed, with systematic assessment and implementation of a physiotherapy program, based on clinical and research evidence (evidence-based physiotherapy).
The students, after the successful completion of the course "Physiotherapy in musculoskeletal pathology and diseases":

- Will gain the ability to systematically complete the assessment of patients with musculoskeletal disorders
- Will have the ability to comprehend the subjective and objective findings, to reproduce them by using the clinical tests that are the most appropriate on a theoretical and clinical/practical level
- Will be able to comprehend and record the physiotherapy assessment and define the short- and long-term aims of physiotherapy intervention
- Will be able to organize and develop an evidenced physiotherapy protocol, as well as the

ability to explain to the patient the objectives through effective communication.

- Will be able to design and select the most appropriate approach for each patient, but also to reassess, considering the needs at the time (occupational, social, family) by modifying and adjusting their intervention
- In the context of the awareness and practice of the profession of physiotherapy, the students will be trained in private and public venues where musculoskeletal physiotherapy is practiced, in order to be able to implement in realistic conditions the acquired knowledge, to operate in a multi-disciplinary environment, to comprehend the professional and ethic responsibilities and to recognize the need for lifetime learning and continuous search for scientific knowledge.
- Will be able to implement the selected methods and techniques for any musculoskeletal problem/disorder with safety, effectiveness and respect to the patients and themselves.
- Will be able to understand and recognize the expected course of an intervention and update their approach, if necessary.
- Will be able to use tools (questionnaires, scales, instruments, etc.) to record the subjective and objective findings, while recognize possible weak points in the examination or treatment, and be able to develop other, more appropriate tools.
- Will be able to explain to the patient the possible complications, warn him/her about possible undesired effects, through targeted and effective communication, ensuring his consent for any intervention

General Competences

- Data collection and analysis
- Compile information, design intervention plan and decision making
- Individual work
- Team work
- Work in multi-disciplinary environment
- Respect diversity and multiculturalism
- Demonstrate social professional and ethical responsibility, as well as sensitivity to medical confidentiality and special populations
- Observe and develop new techniques, or modify existing
- Develop new research ideas

(3) MODULE CONTENT

Theoretical part

Section 1-2: **Introductory concepts for physiotherapy assessment and treatment of musculoskeletal disorders**. Definitions, classification, common and non-common characteristics, description of sections for musculoskeletal disorders. Epidemiologic data, predisposing and confounding factors, prognosis,

prevention. Physiotherapy assessment and rehabilitation principles with various methods – techniques (mobilization techniques: Maitland, Mulligan, McKenzie, Butler, etc., kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling,Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 3: **Deformities of the spine** (scoliosis, lordosis, kyphosis, flatback, torticollis, spondylolysis, spondylolisthesis, etc.). Detailed recording of the important parameters for the physiotherapy assessment of spinal deformities in children and adults. Physiotherapy treatment of spinal deformities through the designing and implementation of evidence-based intervention protocols (physiotherapy after conservative or surgical medical treatment).
Section 4: **Limb deformities** (foot, knee, hip, hand, elbow, shoulder). Detailed description of the important limb deformities for the physiotherapy assessment of limb deformities in children and adults. Physiotherapy treatment of limb deformities through the designing and implementation of evidence-based intervention protocols (physiotherapy after conservative or surgical medical treatment).
Section 5-6: **Arthropathy- Arthritis – Osteoarthritis**. All joints. Detailed discussion for the more common (hip, knee, spine) with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 7-8: **Arthropathy – Arthritis**. Rheumatoid arthritis, ankylosing spondylarthritis, fibromyalgia, systemic lupus erythematosus and other types of inflammatory arthropathies. Discussion of all possible types of rheumatoid related musculoskeletal disorders. Detailed discussion of the most common ones with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 9: **Musuculoskeletal disorders of the thoracic and lumbar spine** (back pain, low back pain with or without neurological symptomatology, discopathies, radiculopathies, unstable lumbar spine, etc.). Detailed discussion of the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 10: **Musculoskeletal disorders of the cervical spine** (neck pain, neck-arm syndrome, etc.). Detailed discussion of the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 11: **Soft tissue disorders** (capsulitis, bursitis, synovitis, tendinopathy, periarthritis,

enthesopathy, etc,.). Characteristic examples from musculoskeletal disorders of the **upper limb** (shoulder and elbow joints) (for example: adhesive capsulitis, rotaror cuff syndrome, subacromial impingement syndrome, calcifying tendinopathy, bursitis, enthesopathy, periathritis, lateral/medial epicondylitis, etc.). Detailed discussion of the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 12: **Soft tissue disorders** (capsulitis, bursitis, synovitis, tendinopathy, periarthritis, etc.). Characteristic examples from musculoskeletal disorders of the **lower limb** (hip and knee joints) Detailed discussion of the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
Section 13: **Soft tissue disorders** (capsulitis, bursitis, synovitis, tendinopathy, enthesopathy, fasciitis, algodystrophy, etc.). Characteristic examples from musculoskeletal disorders of the **hand and foot.** Detailed discussion of the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.

Practical part

- Introductory concepts. Assessment of patients with musculoskeletal disorders. History, data recording based on international standards. Practical application of methods and techniques of assessment and treatment.
- Principles of physiotherapy assessment and treatment for *spine deformities*: kyphosis-lordosis, flat back, loose posture, scoliosis, torticollis
- Principles of physiotherapy assessment and treatment for *muscle tissue-fascia disorders*: Physiotherapy intervention techniques with emphasis with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.

- Principles of physiotherapy assessment and treatment for *connective tissue disorders* (chronic problems) – ligaments – capsule – bursa. Physiotherapy intervention techniques with emphasis with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Principles of physiotherapy assessment and treatment for *connective tissue disorders* (chronic problems) – tendons. Physiotherapy intervention techniques with emphasis with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Principles of physiotherapy assessment and treatment for *neural tissue disorders (mobilization of peripheral neural tissue)* (chronic problems). Physiotherapy intervention techniques.
- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *lumbar spine region*. Practical application in a characteristic example low back pain/sciatica of myofascial origin, with or without radiculopathy, with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *cervical spine region*. Practical application in a characteristic example of neck pain/radiating pain to the upper limb, with emphasis placed on the principles of physiotherapy assessment and rehabilitation with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the

elderly and children/adolescents.

- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *hip region,* with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *knee region*. Practical application in a characteristic example of knee osteoarthritis, with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *foot and toes region,* with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *shoulder region*. Practical application in a characteristic example of adhesive capsulitis in the shoulder, with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *elbow region*, with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of

adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.

- Practical application of the concepts of physiotherapy assessment and treatment for musculoskeletal disorders in the *hands and fingers region*, with various methods – techniques (mobilization techniques, kinesiotherapy programs, etc.), application of protocols of electrophysiological modalities (physical agents, electrotherapy modalities, etc.,) application of adjunct techniques (e.g. acupuncture, electroacupuncture, dry needling, Clinical Pilates, etc.) for musculoskeletal disorders after conservative or surgical medical treatment in adults, the elderly and children/adolescents.
- Final examination through team projects for clinical cases (theoretical and practical applications), and/or oral examination.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>DELIVERY</td><td>Physical presence.</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>100</td></tr>
<tr><td>Seminars</td><td>20</td></tr>
<tr><td>Practical exercises</td><td>30</td></tr>
<tr><td>Study and analysis of the literature</td><td>10</td></tr>
<tr><td>Submission of an individual or team project</td><td>20</td></tr>
<tr><td>Educational visits</td><td>10</td></tr>
<tr><td>Clinical training</td><td>20</td></tr>
<tr><td>Total</td><td>210</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Final written examination (50%), which may include:
✓ Multiple choice questions
✓ Short answer or short essay-type questions
✓ Analysis of a clinical case

The final assessment may be supplemented by:
✓ Individual or team projects
✓ Presentation of a clinical case
✓ Oral examination in practical issues or in clinical environment
✓ Participation in a research activity (data</td></tr>
</table>

	collection, recording of findings, processing, etc.) Practical part (50%): Oral examination

(5) RECOMMENDED READING

Suggested reading

- *Brotzman SB, Manske RC. Clinical Orthopaedic Rehabilitation. 3rd Edition. Philadelphia, PA: Mosby, 2011.*
- *Brotzman SB, Wilk KE. Handbook of Orthopaedic Rehabilitation. Philadelphia, PA: Mosby, 2007.*
- *Canale T, Beaty J. Campbell's Operative Orthopaedics. 12th Edition. London: Mosby, 2013.*
- *Donatelli R, Wooden M. Orthopaedic Physical Therapy. 4th Edition. Philadelphia, PA: Churchill Livingstone, 2009.*
- *Hoppenfeld S: Ορθοπεδική Νευρολογία. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.*
- *Hoppenfield S. Φυσική εξέταση της σπονδυλικής στήλης και των άκρων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.*
- *Kisner C, Colby L. Therapeutic Exercise: Foundations and Techniques. 6th edition. Philadelphia: Published by DavisPlus, 2012.*
- *Magee DJ. Orthopedic Physical Assessment. 5th Edition. Philadelphia, PA: W.B Saunders, 2008.*
- *McRae R, Esser M. Practical Fracture Treatment. 5th Edition. Edinburgh: Churchill Livingstone, 2008. Ελληνική έκδοση: Σουκάκος Π, Βλάσης Κ, Νάτσης Κ. Κλινική Αντιμετώπιση Καταγμάτων. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2008.*
- *Miller M, Hart J. Review of Orthopaedics. 6th Edition. Philadelphia, PA: Saunders Elsevier, 2012. Ελληνική Έκδοση: Μπάμπης Γ. Review Ορθοπαιδικής. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.*
- *Petty J. Nichola. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists*
- *Snyder G. Differential diagnosis for physical therapists. 5th Edition. Edinburgh: Saunders Elsevier, 2012*
- *Solomon L, Warwick D and Nayagam S. Apley's System of Orthopaedics and Fractures. 9th edition.*
- *Oxford: Taylor & Francis Group, 2013*

Module Outline of 'Manual Therapy'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-5040	**Semester**	**5th**
Module Title	Manual Therapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
THEORY: Interactive Lectures - Practicing LABORATORY: Laboratory exercises	Theory: 3 Laboratory: 2	6

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The course introduces the basic concepts of examination, joint mobilization and stabilization techniques, soft tissue mobilization techniques, as well as prepares students for treating and managing patients with dysfunction of the neuro-musculoskeletal system with respect to the individuality and uniqueness of each patient. Students after successful completion of the course will: • Have understood the physiological and pathological intra-articular movement of all the joints of the human body as well as the physiological and abnormal motor ability of the nervous tissue • Have developed the key skills in examining and differentiating the tissues responsible for a joint malfunction

• Be able to gather and interpret test results, and decide on the most appropriate technique to repair a joint malfunction through clinical reasoning and research documentation
• Have acquired the skills / techniques to mobilize all the joints of the human body, as well as to mobilize the scars, muscles, fascia and peripheral nerves
• Have acquired the ability to manage hypermobile joints

General Competences

• Analysis and synthesis of data and information
•Decision making
• Design and management of physiotherapeutic interventions

(3) MODULE CONTENT

- Historical review of joint, muscle and peripheral nerve mobilization techniques
- Physiotherapeutic evaluation according to the International Federation of Orthopedic Manipulative Physical Therapists (subjective interview, physical examination, clinical reasoning, trial therapy).
- Examination of functional movements of joints and differential diagnosis of the responsible for the dysfunction structures (muscles, bones, articular capsule / ligaments, nerve tissue). Laboratory exercises.
- Basic principles of joint examination, mobilization and stabilization.
- Examination of the accessory movements and mobilization techniques of the joints of the upper and lower extremities. Laboratory exercises.
- Examination and mobilization of the scar, muscle and fascia. Laboratory exercises.
- Examination of accessory movement and mobilization of the spine. Laboratory exercises.
- Nervous tissue: Clinical features, biomechanics (spinal cord and peripheral nerves), palpation, neurodynamic tests (peripheral nerves) and nerve tissue mobilization techniques. Laboratory exercises.
- Basic principles of restoring the neuro-musculoskeletal dysfunction of the spine. Laboratory exercises.
- Develop a sense of respect for each patient's individuality as well as the importance of their consent and active participation.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

Delivery	Face to Face
Use of Information and Communication Technology (ICT)	Open e-class platform

Teaching Organization

Activity	***Semester Workload***
Lectures	100
Workshop	20
Laboratory Training	60
Total	**180**

Student Assessment	The theoretical part of the course is assessed by a written final exam (50%) that includes questionnaires throughout the subject (multiple choice questions, right-to-wrong, fill-in-the-blank and text development). The laboratory part (50%) is evaluated with: • continuous assessment of students throughout the semester to assess the adequacy of the skills learned • final examination of all the material taught

(5) SUGGESTED READING

Suggested Reading :

- *ShomacherJ. Ειδικές τεχνικές κινητοποίησης στο μυοσκελετικό σύστημα. Αθήνα: Εκδόσεις Κωνσταντάρα, 2014.*
- *CookCE. Φυσικοθεραπεία μία τεκμηριωμένη προσέγγιση. Αθήνα: Εκδόσεις Λαγού, 2014*
- *Fernandez-de-las-Penas C, Cleland JA, Dommerholt J. Manual therapy for musculoskeletal pain syndrome. London: Elsevier 2017.*
- *Lewit K. Manipulative therapy: Musculoskeletal medicine. London: Elsevier 2009.*
- *Shacklock M. Clinical Neurodynamics. London: Elsevier 2005.*
- *Vleeming A,Mooney V,Dorman T,Snijders C,Stoecart R. Movement, stability and low back pain. London: Churchill Livingstone 1997.*

- *Related Journals :*

- *Manual Therapy*
- *Journal of Manual and Manipulative Therapy*
- *Journal of Manipulative and Physiological Therapeutics*

6th SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	CLINICAL PLACEMENT IN MUSCULOSKELETAL P/T	SM	П1-6010	3	150	8	150	11	300	300	10
2	PHYSIOTHERAPY IN ADULT NEUROLOGICAL DISEASES	SM	П1-6020	3	90	2	90	5	180	180	6
3	ERGONOMICS-PHYSIOTHERAPY CONSULTATION	SBM	П1-6030	3	90	2	60	5	150	150	5
4	SPORTS PHYSIOTHERAPY	SM	П1-6040	3	90	2	90	5	180	180	6
	ELECTIVE MODULES										
6	BIOSTATISTICS	EM	П1-6A10	2	90			2	90	90	3
	PHARMACOLOGY	EM	П1-6B10	2	90			2	90	90	3
TOTAL				**17**	**660**	**6**	**240**	**23**	**900**	**900**	**30**

Module Outline Of 'Clinical Training In Musculoskeletal Physiotherapy'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDERGRADUATE		
MODULE CODE	P1-4050	SEMESTER	4th
MODULE TITLE	Clinical Training In Musculoskeletal Physiotherapy'		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
Theory (lectures)		3	10
Practical (clinical training and practical exercises)		8	
MODULE TYPE	Special Core Course		
PRE-REQUIRED MODULES			
TEACHING AND EXAMINATION LANGUAGE:	Greek		
MODULES SUITABLE for ERASMUS STUDENTS			
MODULE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The main objective of the course Clinical Training in musculoskeletal physiotherapy is the teaching of rehabilitation through clinical physiotherapy of patients after the surgical treatment of musculoskeletal disorders and injuries. The students are trained in the clinical rehabilitation of out-patients with musculoskeletal disorders and problems. During the educational process emphasis is placed on the pre-and postsurgical physiotherapy assessment of patients, attending surgical procedures, the clinical training of students in the hospital physiotherapy department, as well as to the cooperation with the medical and nursing stuff of the hospital the students are placed in. The objective of the course is to train students to design a rehabilitation program for the duration of hospitalization, while protecting the operated limb or body region.

The students, after the completion of the course:

- Will have gained knowledge in the rehabilitation through clinical physiotherapy of patients after the surgical treatment of musculoskeletal disorders or injuries, as well as in the clinical rehabilitation of out-patients with musculoskeletal disorders or injuries.
- Will be able to recognize and identify the injury mechanisms or the causes of musculoskeletal symptoms/problems that lead to a surgical orthopaedic treatment and postoperative physiotherapy rehabilitation.
- Will be able to understand, choose and then implement the method for the clinical assessment of patients with musculoskeletal disorders or injuries.
- Will be able to collect, interpret and compile the results of a conservatively or surgically treated patient with a musculoskeletal disorder or problem and design an individualized physiotherapy intervention.

- Will be able to define the short- and long-term goals of the conservative physiotherapy rehabilitation, as well as of the pre- and postoperative physiotherapy intervention.
- Will have gained the necessary skills for the implementation of the basic clinical postoperative physiotherapy intervention during the early postoperative period.

General Competences - Learning Outcomes

- Decision making
- Individual work
- Team work
- Work in multi-disciplinary environment
- Adaptation to new conditions.
- Design and implement clinical assessment in patients with musculoskeletal disorders and injuries
- Design and implement the main principles of clinical physiotherapy interventions in outpatients and operated patients with musculoskeletal disorders or injuries.
- Develop new research ideas

(3) MODULE CONTENT

Theoretical part

- Preoperative assessment and training of the patient. Gerenal principles of planning a physiotherapy rehabilitation program during the early postoperative period. The contribution of physical modalities to the treatment of early symptoms of a patient after orthopaedic surgery
- Physiotherapy rehabilitation after hip arthroplasty: Indications-contraindications. Surgical techniques. Elements of diagnostic imaging.
- Physiotherapy rehabilitation after hip arthroplasty: Planning a rehabilitation program.
- Physiotherapy rehabilitation after surgical treatment of musculoskeletal injuries to the pelvis, the hip joint and femur. Aceutabular fractures, proximal femur fractures, femoral shaft fractures, Surgical techniques, elements of diagnostic imaging. Notes about the planning of physiotherapy rehabilitation program.
- Physiotherapy rehabilitation after knee arthroplasty: Indications-contraindications. Surgical techniques. Elements of diagnostic imaging.
- Physiotherapy rehabilitation after knee arthroplasty: Planning a rehabilitation program
- Physiotherapy rehabilitation after surgical treatment of musculoskeletal injuries in the knee, the tibia and the foot. Surgical techniques, elements of diagnostic imaging. Notes about the

design of a physiotherapy rehabilitation program.

- Physiotherapy rehabilitation after shoulder arthroplasty: Indications-contraindications. Surgical techniques. Elements of diagnostic imaging.
- Physiotherapy rehabilitation after shoulder arthroplasty: Planning a rehabilitation program.
- Physiotherapy rehabilitation after surgical treatment of musculoskeletal injuries in the shoulder girdle and the humerus. Surgical techniques, elements of diagnostic imaging. Notes about the planning of the physiotherapy rehabilitation program.
- Physiotherapy rehabilitation after surgical treatment of musculoskeletal injuries in the forearm. Surgical techniques, elements of diagnostic imaging. Notes about the planning of the physiotherapy rehabilitation program.
- Physiotherapy intervention and treatment of postoperative complications after surgical treatment of musculoskeletal disorders and injuries.

Practical part

- Introduction to clinical training: Briefing, contact with the members of the physiotherapy rehabilitation team of the hospital. The role and the contribution of the physiotherapist to the rehabilitation team.
- History taking and assessment of patients with musculoskeletal problems. Pain measurement scales, functional assessment scales. Planning the physiotherapy rehabilitation. Clinical examples.
- Clinical reasoning and problem solving in the physiotherapy rehabilitation of musculoskeletal problems. Clinical examples.
- Reeducation of gait and use of walking aids in the physiotherapy rehabilitation. Clinical examples.
- Physiotherapy rehabilitation for injuries in the upper and lower limb: Surgical technique, limitations, assessment and therapy planning, clinical applications.
- Physiotherapy rehabilitation for spine injuries: Surgical technique, limitations, assessment and therapy planning, clinical applications.
- Visiting an operating theater: Surgical treatment of orthopaedic patients.
- Visiting an out-patient clinic: Student participation in the clinical examination of patients with musculoskeletal disorders or injuries. Briefing from the multidisciplinary team. Practice at physiotherapy consultation
- Physiotherapy rehabilitation after knee arthroplasty. Surgical technique, history of the patient, radiographical and clinical assessment, physiotherapy assessment, goals of physiotherapy rehabilitation, planning a physiotherapy program, clinical applications.

- Physiotherapy rehabilitation after shoulder arthroplasty. Surgical technique, history of the patient, radiographical and clinical assessment, physiotherapy assessment, goals of physiotherapy rehabilitation, planning a physiotherapy program, clinical applications.
- Removal of internal fixation hardware after a fracture and total arthroplasty revision. Surgical technique, history of patient, radiographical and clinical assessment, physiotherapy assessment, goals of physiotherapy rehabilitation, limitations and planning a physiotherapy program, clinical applications.
- Student training in the physiotherapy department of the hospital. Physiotherapy assessment and planning of physiotherapy rehabilitation of patients with chronic musculoskeletal problems and disorders, like injuries and soft tissue problems, osteoarthritis, rheumatoid diseases.
- Continuous student evaluation during the semester in clinical practical exercises and final assessment in clinical cases. The student assessment included oral presentations about the physiotherapy treatment of clinical musculoskeletal problems.
- Presentation of complex problems, like trauma patients, amputations, peripheral nerve injuries, other health problems of the orthopaedic patient, physiotherapy assessment and planning of physiotherapy rehabilitation. Clinical applications.
- Training at a paedo-orthopaedic clinic and in sports injuries clinic.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>DELIVERY</td><td colspan="2">Physical presence.</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)</td><td colspan="2">Open e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>Activity</td><td>Semester workload</td></tr>
<tr><td></td><td>Theoretical part
Presentations and lectures
Visiting lectures after approval by the Physiotherapy Department</td><td></td></tr>
<tr><td></td><td>Theoretical part
Use of e-class to post and circulate articles, clinical guidelines, lectures, useful links, questionnaires and</td><td></td></tr>
</table>

	information about conferences relating to the course, etc.	
	Total of theoretical part	150
	Practical part Student briefing by the doctors about the clinical and radiographical assessment, as well as the treatment (surgical or conservative) of musculoskeletal injuries and disorders	
	Practical part Training students to fill in assessment and progress sheets of patients in rehabilitation	
	Total of practical part	**150**
	Total of course	**300**
STUDENT ASSESSMENT	Theoretical part • Final written examination (100%), which may include: ✓ Multiple choice questions ✓ Short answer or short essay-type questions, analysis of roles in a brief case study ✓ Problem solving relative to quantitative data ✓ Comparative evaluation of theoretical elements **Practical part** • Continuous student assessment during the semester with clinical practical exercises, or questions regarding taught clinical cases (25%) • Final examination with clinical cases (25%).	

(5) RECOMMENDED READING

Suggested reading

- *Βερέττας Δ, Βούλγαρης Π, Καπετάνος Γ, et al. Σύγχρονη Ορθοπαιδική και Τραυματολογία Apley's. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2007.*
- *Brotzman SB, Manske RC. Clinical Orthopaedic Rehabilitation. An Evidence-Based Approach. 3rd Edition. Philadelphia, PA: Mosby, 2011.*
- *Brotzman SB, Wilk KE. Handbook of Orthopaedic Rehabilitation. 2nd Edition. Philadelphia, PA:*

Mosby, 2007.

- *Canale ST, Beaty JH. Campbell's Operative Orthopaedics. 13th Edition. Philadelphia: Mosby, 2016.*
- *Donatelli R, Wooden M. Orthopaedic Physical Therapy. 4th Edition. Philadelphia, PA: Churchill Livingstone, 2009.*
- *Green A, Hayda R, Hecht AC. Postoperative Orthopaedic Rehabilitation. Wolters Kluwer, American Academy of Orthopaedic Surgeons, 2017.*
- *Brody LT, Hall CM. Therapeutic Exercise: Moving Toward Function. 4th Edition. Philadelphia, PA: Lippincott Williams & Wilkins, 2017.*
- *Hoppenfeld S, Murthy VL. Treatment & Rehabilitation of Fractures. Philadelphia, PA: Lippincott Williams & Wilkins Editions, 2000.*
- *Kisner C, Θεραπευτικές Ασκήσεις . Αθήνα: Ιατρικές & Επιστημονικές Εκδόσεις ΣΙΩΚΗΣ, 2003.*
- *Egol K, Koval JK, Zuckerman DJ. Handbook of Fractures. 5th Edition. Philadelphia, PA: Wolters Kluwer, 2015.*
- *Magee DJ. Orthopedic Physical Assessment. 6th Edition. Philadelphia, PA: ELSEVIER, 2014.*
- *McRae R, Esser M. Practical Fracture Treatment. 5th Edition. Edinburgh: Churchill Livingstone, 2008. Ελληνική έκδοση: Σουκάκος Π, Βλάσης Κ, Νάτσης Κ. Κλινική Αντιμετώπιση Καταγμάτων. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2008.*
- *Miller M, Hart J. Review of Orthopaedics. 6th Edition. Philadelphia, PA: Saunders Elsevier, 2012. Ελληνική Έκδοση: Μπάμπης Γ. Review Ορθοπαιδικής. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.*
- *Solomon L, Warwick D, Nayagam S. Apley's System of Orthopaedics and Fractures. 9th Edition. London: Hodder Arnold, 2010*

Related scientific journals

- *Physical Therapy*
- *Journal of Orthopaedics and Traumatology*
- *Journal of Orthopaedic & Sports Physical Therapy*
- *Journal of Orthopaedic Trauma*
- *The Bone & Joint Journal*
- *Hip International*
- *The Knee*
- *The Journal of Hand Surgery*

Module Outline of 'Neurological Physiotherapy in Adults'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-6020	**Semester**	6th
Module Title	**Neurological Physiotherapy in Adults**		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (lectures)	3	**6**
Laboratory (laboratory exercises and clinical training)	2	
Total	5	

Module Type	Specialty Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	YES (English), undertaking an essay
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The module Neurological Physiotherapy in Adults is a basic course for preparing students for the module CLINICAL TRAINING IN NEUROLOGICAL PHYSIOTHERAPY. The module content aims to provide students with the theoretical knowledge and special methods necessary for the physical therapy of adult patients with brain lesion, spinal cord injuries and diseases. Specifically, methods and techniques for resolving problems in adults with neurological diseases, such us disorders of the muscle tone, balance, gait, functioning, chronic fatigue syndrome, and their impact on the patient's quality of life are analyzed. Additionally, the assessment scales for these parameters are mentioned and explained. For each disease, the procedure for examining and evaluating the adult patient's clinical signs and symptoms is analyzed, the data are interpreted and, also, methodology for the planning of ~~an~~ effective intervention and its evidence base are analyzed. After having successfully completed the module Neurological Physiotherapy for Adults students will be able to: • Know the etiology and clinical signs and symptoms of various neurological diseases. • Recognize and manage the common complications that occur in adult patients with neurological diseases. • Describe, interpret through clinical reasoning the appropriate therapeutic interventions and specify the short- and long-term goals of physiotherapeutic intervention in adult patients with neurological disease. • Recognize the causes and mechanisms of traumatic brain injury and spinal cord injury. • Recognize and then apply specific therapeutic interventions depending on the stage of the disease or the functional limitations of individuals with neurological diseases. • Describe and apply patient and family training strategies for managing their functional limitations. • Describe strategies for improving cognitive disorders. • Recognize the importance of functional exercises to patients with neurological disorders.
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Group work • Planning and managing physiotherapeutic interventions • Work in an interdisciplinary context

(3) MODULE CONTENT

• **Introduction to Neuroscience of Physiotherapy** (structure and function of neurons, motor control and descending systems, pathways and perception of somatosensation, cognitive function, neuroplasticity). • **Physiotherapeutic evaluation of the adult patient with neurological disease** (examination, evaluation, interpretation and organization of assessment findings, prognosis and therapeutic plan, design of the most appropriate intervention strategies, progress assessment, recognition of potential need for further evaluation or referral to other health care professionals). • **Measurement and assessment tools** (reference and analysis of measurement and assessment tools for the following parameters: hypertonia, dystonia , ataxia, balance, gait, chronic fatigue syndrome, functioning).

- **Physiotherapy in Stroke** (clinical findings, therapeutic planning and PT intervention in the hospital, rehabilitation center or at home as well as an outpatient).
- **Spasticity** (definition, PT evaluation and treatment).
- **Orthotics and assistive mobility devices** (orthoses, canes, walkers, wheelchairs).
- **Physiotherapy in Parkinson's disease** (pathophysiology, clinical signs and symptoms at each stage of the disease, PT assessment and physiotherapeutic interventions depending on the clinical course of the disease).
- **Physiotherapy in Multiple Sclerosis** (pathophysiology, clinical signs and symptoms, PT evaluation and management, therapeutic strategies depending on the stage of the disease).
- **Physiotherapy in Traumatic Brain Injuries** (classification, incidence, clinical signs and symptoms, PT assessment and management in acute and chronic stages, complications, family training).
- **Physiotherapy in Spinal Cord Injuries** (pathophysiology, CNS classification, clinical signs and symptoms, complications, physiotherapy assessment and management in acute and chronic stages)
- **Physiotherapy in Cerebellar Disorders** (anatomy and physiology of the cerebellum, its clinical manifestations, physiotherapeutic interventions for balance and gait).
- **Physiotherapy in Motor Neuron Disease** (epidemiology, risk factors, clinical signs and symptoms and disease progression, PT assessment and management).
- **Physiotherapy in Dementia** (causes, classification, PT management of patient with dementia, the role of exercise in the prevention of dementia).

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>DELIVERY</td><td colspan="2">Physical presence</td></tr>
<tr><td>USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)</td><td colspan="2">Open e-class platform</td></tr>
<tr><td rowspan="6">TEACHING ORGANIZATION</td><td>Activity</td><td>Semester Workload</td></tr>
<tr><td>Lectures</td><td>110</td></tr>
<tr><td>Laboratory training and exercise</td><td>50</td></tr>
<tr><td>Educational visits</td><td>10</td></tr>
<tr><td>Submission of an individual or team project</td><td>10</td></tr>
<tr><td>Total</td><td>180</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td colspan="2">The theoretical part of the module is assessed by final written examination (50%), which may include multiple choice questions, true-or-false questions, gap-filling and essay type questions

The laboratory part is evaluated with continuous assessment of the students throughout the semester (with practical demonstration of assessment methods, therapeutic intervention planning and demonstration of physiotherapy techniques) (50%)</td></tr>
</table>

(5) SUGGESTED READING

- *Suggested Reading:*

  - *Martin and Kessler. Φυσικοθεραπευτικές Παρεμβάσεις σε Ασθενείς με Νευρολογικές Παθήσεις. Επιμέλεια ελληνικής Έκδοσης: Δάφνη Μπακαλίδου. Αθήνα. Εκδόσεις: Κωνσταντάρας-Ιατρικές εκδόσεις , 2015*
  - *Deborah S. Nichols-Larsen. Νευρολογική αποκατάσταση. Νευροεπιστήμες και Νευροπλαστικότητα στη Φυσικοθεραπεία. Επιμέλεια ελληνικής Έκδοσης: Δάφνη Μπακαλίδου. Αθήνα. Εκδόσεις: Κωνσταντάρας-Ιατρικές εκδόσεις , 2017*
  - *Barbara S. Giesser. Primer on multiple sclerosis. Oxford, University press, 2016*
  - *Ian mehrholz. Physical Therapy for the stroke patient. Thieme, 2012*
  - *Michael P. Barnes and Garth R. Jonson.σύνδρομο ανώτερου κινητικού νευρώνα και σπαστικότητα. Κλινική αντιμετώπιση και νευροφυσιολογία. Επιμέλεια ελληνικής Έκδοσης: Κωνσταντίνος Κατσουλάκης. Εκδόσεις: Επιστημονικές εκδόσεις Παρισιάνου , 2008*
  - *M. Baehr & M. Frotscher. Duus' Εντοπιστική Διάγνωση στη Νευρολογία. Επιμέλεια ελληνικής Έκδοσης: Σοφία Βασιλοπούλου. Αθήνα. Εκδόσεις: Κωνσταντάρας-Ιατρικές εκδόσεις, 2009*

- *Related scientific journals:*
  - *Brain and behavior*
  - *Multiple sclerosis*
  - *Multiple sclerosis and related diseases*
  - *International Journal of Rehabilitation Research*
  - *Journal of Clinical Neuroscience*
  - *European Journal of Physical and Rehabilitation Medicine*
  - *BMC Health Services Research*
  - *Disability and Rehabilitation*
  - *Neurorehabilitation*
  - *Acta Scandinavica*

Module Outline Of 'ERGONOMICS AND CONSULTANCY IN PHYSIOTHERAPY

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDERGRADUATE		
MODULE CODE	P1-6030	SEMESTER	5th
MODULE TITLE	ERGONOMICS AND CONSULTANCY IN PHYSIOTHERAPY		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**ECTS**
Theory (interactive lectures)		3	
Practical (practical exercises)		2	
Total		5	5
MODULE TYPE	Special Core Course		
PRE-REQUIRED MODULES			
TEACHING AND EXAMINATION LANGUAGE	Greek		
MODULE SUITABLE for ERASMUS STUDENTS	Yes (English)		
MODULE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

The course Ergonomics-Physiotherapy Consultation is a basic field connecting physiotherapy to the modern social and professional reality with the goals of prevention, the optimization of professional performance, while guarding and protecting human resources.
The objectives of the course are for the students to comprehend:

- The main principles of ergonomics in its tree main aspects (physical, cognitive and organization)
- The current epidemiological data regarding health problems related to occupation and everyday life
- The mechanisms of painful syndromes related to occupation and everyday life
- The relationship between man-machine.
- The relationship between man and environment (physical, occupational, home, etc.)
- The recording and analysis methods of human activity, in the context of specific activities

After the successful completion of the course the students:

A. Will be able to

- Assess the effect of gravity and loads during the handling of a weight
- Plan ergonomic interventions, in order to optimize the occupational performance and to prevent musculoskeletal disorders

- Analyze occupational activities by recording and measuring the loads applied on the musculoskeletal system and the effect of everyday conditions on the other systems of the human body
- Implement ergonomic adaptations and programs, cooperating with professionals of the multidisciplinary ergonomics team and using the appropriate recording an assessing tools of the occupational activity
- Comprehend the need for the proper occupational planning, in order to prevent risks, anxiety, individual and organizational errors, undue physical, mental and emotional fatigue and to assist to the safe integration to work space.
- Contribute to the planning of the rehabilitation and occupation and to teaching and research

B. Will be able to apply basic ergonomic principles in commonly reported problems for physiotherapy intervention and plan adapted physiotherapy programs:
    - For the improvement of posture, motion and function of a person in the context of everyday life and professional occupation
    - For the learning of appropriate skills for reduced loads while handling a weight
    - For appropriate interventions in order to manage and prevent painful syndromes
    - For the optimization of occupational performance through the management and prevention of problems related to pain and overuse in the musculoskeletal system
    - To support the occupational activity in ergonomically organized work spaces by assessing possible occupational risks
    - To train professionals and improve their performance by applying the principles of physics, cognitive and organizational aspects of ergonomics.
    - To improve the procedures of servicing and caring for the patients

General Competences - Learning Outcomes

- Analysis and synthesis of data and information
- Decision making
- Individual work
- Planning and management of physiotherapy interventions
- Team work
- Work in an international environment
- Work in multi-disciplinary environment
- Promote free, creative and deductive thinking
- Develop new research ideas

(3) MODULE CONTENT

Theoretical part

- Ergonomics. Definition, main elements. Interaction between man and machine.
- Epidemiology. Main elements. Illness, occupation, cost, prevention and European perspective.
- Prevention and improvement programs of the motor patterns: lumbar spine, trunk, cervical spine (back school, neck school, consultation in coexisting abnormal conditions)
- Simple machines, vehicles. Schock-vibration. Loads analysis, machine operation. Vehicles, drivers.
- Lower limb. Pelvis, hip, knee, ankle, foot, toes, sole. Muscle activity and loading of musculoskeletal structures in the lower limb. Exercise. Prevention.
- Normal gait, metabolic cost. Deceleration and loading during gait. Normal gait patterns. Running, stairs.
- Floor, friction. Loads and deviations from normal function of the foot. Compressive forces. Repetitive motions. Footware, oveuse syndromes.
- Upper limb. Assessment of developing forces in the upper limb structures. Loads in the tissues, revertive motions, deceleration of the human body in everyday activities.
- Anthropometrics. Grips. Everyday tools and objects, ergonomic design. Equipment, organize work space. Appopriate choice and adaptation to prevent loading.
- Health and safety in work. Epidemiological data related to occupational activity and work conditions.
- Work, environment. Heat, sound, lights. White finger syndrome. Impact of sound environment. Visual fatigue.
- Biologic rhythms, nightwork, metabolic diseases, preventive physiotherapy.
- Complex mental tasks, human error, decision making, motivation.
- Musculoskeletal and psychological stress. Anxiety, burnout, aches/pain, musculoskeletal syndrome. Prevention.
- General ergonomic model – Ergonomic work analysis.
- Goals of ergonomic intervention in work space. Ergonomic programs. Instructions, planning, EU guidelines. Healthy occupation in every age.
- Preventive physiotherapy. Physiotherapy assessment and intervention for functional rehabilitation and personal “social efficacy”.
- The role of the physiotherapist as an ergonomic clinical expert and his contribution to rehabilitation, to the organization of work, to teaching and research.
- Contribution to the organization and improvement of systems and processes for servicing and caring for patients.

Practical part

- Trunk. Pelvic control. Improvement of proprioception and posture. Streching and strengthening of appropriate muscle systems.
- Sitting posture. Observation, analysis, assessment. Seats, experiential applications.
- Ergonomic seat, computer. Use of computer, stresses. Prevention, applications.
- Principles of ergonomic organization in workspace. Loading positions, postures of musculoskeletal systems.
- Everyday musculoskeletal stresses. Assessment of stresses in musculoskeletal structures.
- Prevention of musculoskeletal stresses. Preventive physiotherapy programs.
- Adaptation of everyday activities based on ergonomic needs.
- Gait. Targeted observation, evaluation and analysis of loading.
- Gait assessment. Interventions targeted to prevention.
- Evaluation and assessment of loading in everyday activities – prevention of musculoskeletal stresses in everyday activities (baby care by the mother, tasks of pupil, home tasks, etc.).
- Ergonomic intervention, preventive physiotherapy programs, applications.
- Physiotherapy consultation in hospitals and work spaces, including industries, construction sites, offices, health care services, public and private physiotherapy venues.
- Ergonomic occupational analysis. Ergonomic programs.
- Organization in work spaces, in order to optimize occupational performance, safety and protection from stresses, reduce accidents and leaves of absence due to illness, with benefits for employers and employees.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

<table>
<tr><td>DELIVERY</td><td colspan="2">Physical presence.</td></tr>
<tr><td>USE OF INFORMATION & COMMUNICATION TECHNOLOGY (ICT)</td><td colspan="2">Open e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>Activity</td><td>Semester workload</td></tr>
<tr><td></td><td>Theoretical part
Lectures
Guest lectures after approval by the Physiotherapy Department</td><td>90</td></tr>
<tr><td></td><td>Theoretical part
Practical exercises
Educational visits (inside or outside the School after</td><td>30

30</td></tr>
</table>

	approval by the Department)		
	Total of course	**150**	
STUDENT ASSESSMENT	Student assessment for the theoretical part includes: ✓ A final written examination (50%) which may include multiple choice questions, right/wrong questions, fill the blank questions and essay type questions Student assessment for the practical part will be conducted in three parts (50%) an may include: ✓ Application of assessment methods for the posture and motion of the average normal person ✓ Goal setting, planning and implementation of physiotherapy intervention programs with the goal to improve posture and motion ✓ Observation and record everyday or occupational activities, with the option for educational visits and presentation of an evidence-based proposal for problem solving based on physiotherapy principles.		

(5) RECOMMENDED READING

Suggested reading

- *Berry C. A Guide to Ergonomics. Occupational Safety and Health Division. North Carolina: Department of Labor, 2009.*
- *Bradley D, Clifton-Smith T. Breath, Stretch and Move. Get Rid of Workplace Stress New Zealand: Random House, 2013.*
- *Burton J. WHO Healthy Workplace. Framework and Model: background and supporting literature and practice. Geneva: WHO Headquarters, 2010.*
- *Chaffin D, Andersson G. Occupational Biomechanics. Seated Work. 4th Edition. NY: J. Wiley & sons, 2006.*
- *Chaitow L. Is a postural-structural-biomechanical model. Within manual therapies, viable?: A JBMT debate. Journal of Bodywork & Movement Therapies. 2011; 15:130-152.*
- *Chebykin O, Bendy G, Karwowski W. Ergonomics and Psychology. Developments in Theory and Practice. NewYork: CRC Press, 2008.*

- *Donatelli R, et al. Physical therapy of the shoulder. 5th Edition. New York: Churchill Livingstone, 2011.*
- *Frankel V, Nordin M. Basic Biomechanics of the Musculoskeletal System 4th Edition, Baltimore Lipincott, Williams & Wilkin, 2012.*
- *Helander M. A Guide to Human Factors and Ergonomics. 2nd Edition. Florida: CRC Press, 2005.*
- *Jakobs K. Ergonomics for Therapists. 3nd Edition. Baltimore: Mosby, 2008.*
- *Key G. Industrial Therapy. Baltimore: Mosby, 2008.*
- *Kriebel D, Jakobs M, Markkanen P, et al. Lessons Learned. Solutions for workplace safety and health. University of Massachusetts: Lowel, 2011.*
- *Λάιος Λάμπρος, Γιαννακούρου - Σιουτάρη Μ. Σύγχρονη εργονομία 5ηέκδοση Αθήνα: Εκδόσεις Γιαννακούρου,2003*
- *Levy B, Wegman B, Baron S,Sokas R. Occupational and Environmental Health, 6theditionOxford:University Press,*
- *Loisel P, Anema J. Handbook of work disability: Prevention and management. NY: Springer 2013.*
- *Marklund S, Worklife and Health in Sweden2000, Stockholm : National Institute in Working Life,2001.*
- *Μαρμαράς Ν. Εισαγωγή στην εργονομία Αθήνα: 5ηέκδοσηΠανεπιστημιακές εκδόσεις, Εθν, Μετσόβιο Πολυτεχνείο,2010*
- *Μαρμαράς Ν. Ναθαναήλ Δ. Εισαγωγή στην εργονομία Αθήνα: 1ηέκδ. Ελληνικά ακαδημαϊκά ηλεκτρονικά συγγράμματα και βοηθήματα, αποθετήριο Κάλλιπος,2016*
- *Occupational Safety & Health Administration. Ergonomics for the prevention of the musculoskeletal disorders. USA: Department of Labor, 2009. Available at: http://www.osha.gov/ergonomics/guidelines/nursinghome/final_nh_guidelines.pdf*
- *Πουλμέντης Π. Βιολογική Μηχανική Εργονομία. Αθήνα: Εκδόσεις Καπόπουλος, 2007.*
- *Salvendy G, Handbook of Human Factors and Ergonomics 4 4thedition New Jersey : John Wiley and Son's, 2012.*
- *Schunke M, Schulte E, Schumacher U. Βασική Περιγραφική Ανατομική. 6ηέκδοση Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2007.*
- *Smidt G, Gait in rehabilitation. NY Churchill Livingstone,1990*
- *Stevens A, Lowe J. Ιστολογία του Ανθρώπου. 3ηέκδοση.Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2008. Τσακλής Π. Β. Γενικές αρχές εργονομίας και προληπτική φυσικοθεραπείας. 1ηέκδοση Εκδόσεις University Studio Press A.E., 2005*
- *Chartered Society of Physiotherapy (CSP) (2002) Physiotherapy Consultant (NHS): Role,*

Attributes and Guidance for Establishing Posts. [WWW document.] URL http:// www.csp.org.uk/uploads/documents/csp_physioprac_pa56.pdf

Related scientific journals

- *Accident Analysis and Prevention*
- *Applied Ergonomics*
- *Ergonomics*
- *Human Factors*
- *Journal of Cognitive Engineering and Decision Making*
- *International Journal of Human Computer Studies*
- *International Journal of Industrial Ergonomics*
- *IEEE Transactions on Human-Machine Systems*
- *Pain*

Module Outline of 'Sports Physiotherapy '

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-6040	Semester	**6th**
Module Title	Sports Physiotherapy		

Independent Teaching Activities	Weekly Teaching Hours	ECTS
Lectures, practice exercises, and laboratory exercises clinical education	5 Theory: 3 Lab: 2	6

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
Sports Physiotherapy is a specialized field of physiotherapy that mainly explores the epidemiology of sports injuries causes, functional assessment and functional rehabilitation of sports injuries. Sports Physiotherapy is involved on the injured athlete in relation to the bioenergy system of its sport, athletic level / category, athletic training period, and athlete's age, gender, health problems, and external / internal environment conditions. The aim of this module is focused on prevention, evaluation, planning processes and functional rehabilitation through mechanisms of injuries, technical skills and energy requirements of each sport for safe return to sport participation.

In addition, the students would be able to participate in state-of-the-art therapeutic approaches and to manage sports injuries in order to maximize athletes performance. Safe return to sport activities would be the main task of sports physiotherapist through prevention, promoting sportsmanship and participating in collaborative teams for the long-term benefits of the sport.

Students after successfully completing the module of Sport Physiotherapy:

- They will have acquired knowledge of the science of sports physiotherapy
- They will be able to identify injury risk factors and use strategies to prevent them
- They will be able to understand and apply methods of assessment and functional rehabilitation of sports injuries as well as general health problems from exposure athletes' to specific and external environmental conditions
- They will be able to assemble, interpret and compose the results of the assessment of the injured athlete in relation to the type of sport, the training period, the external conditions, the particularities of health, age and gender through their clinical reasoning
- They will be able to identify short-term and long-term goals in relation to the prevention, treatment and functional rehabilitation of sports injuries
- They will have acquired the necessary skills to adequately implement specific sporting interventions to prevent and sort out the bioenergy systems of the sport.

General Competences

• Analysis and synthesis of data and information
•Clinical decision making
• Independent work
•Teamwork
• Design and management of physiotherapeutic evaluation, intervention, prevention and implementation of functional rehabilitation in the injured athlete

(3) MODULE CONTENT

- Introduction to Sports Physiotherapy: a) Specificities of sports injuries, b) Exogenous and endogenous factors, c) Epidemiology of sports injuries, d) Principles of sports injury prevention, e) Exercise suggestions (core stability, motor control, close kinetic chain etc).

- Principles and criteria for the functional evaluation of sports injuries, sport training periods and return to sports a) Functional assessment b) Special tests and new technologies (isokinetic, diagnostic ultrasound, EMG, etc.), c) Motor control assessment and athletic performance.

- Prevention and healing process of sports injuries: the mechanism of injury and the industrialization of sports injuries in relation to the type of sports activity such as, a) sports season, b) kinetics and kinematics in sports and biological tissues behaviour, c) general health problems etc.

- Psychological approach to sports injuries and first aid: a) first aid principles for injured athletes; b) the effect of cryotherapy; c) methods of approaching stress through mental training and rehabilitation of sports injuries. Clinical applications.

- Injuries to the muscles- tendons. a) Causes of muscle strains, cramps, peritoneal syndrome, b) Causes of tendon injuries, c) Principles and implementation of functional assessment and rehabilitation in relation to sport types and athletes levels. Clinical application and description of sports kinetics and kinematics in the most common sports.

- Athletic strain-overload syndromes and injuries from external athletes. (a) Causes of challenge, (b) Climatic injuries, (c) Principles and implementation of clinical/ functional assessment and rehabilitation principles. Clinical application and description of sports kinetics and kinematics in the most common sports.

- Spine and injuries to athletes. a) Chronic cervical and lumbar spine pain, motor chains, pelvic and fibrillation syndromes, b) principles of prevention and clinical and functional assessment and rehabilitation principles. Clinical application and description of sports kinetics and kinematics in the most common sports.
- Shoulder and injuries to athletes. a) Muscle-tendon and instability syndromes on the thrower's shoulder, swimmer, rhythmic gymnast, etc; b) clinical/functional evaluation and rehabilitation principles. Clinical application and description of sports kinetics and kinematics in the most common sports.

- Elbow and hand injuries to athletes. a) Overactive syndromes, orogenic follicles, tennis elbow, golfer, wrestler's hand, skier's, cyclist's etc, b) clinical evaluation and functional rehabilitation principles. Clinical application and description of sports kinetics and kinematics in the most common sports.

- Knee and injuries in athletes. Tibia-femoral joint: a) Meniscus injuries, b) Anterior cruciate ligament injuries, lateral ligaments, etc. c) Patellar-femoral joint and patellar deviations; and clinical/functional assessment and rehabilitation principles. Clinical application and description of sports kinetics and kinematics in the most common sports.

- Foot and ankle injuries in athletes. a) Sprains; (b) ligament ruptures; c) biomechanical disorders and axis deviations of the lower limb joints; d) Achilles tendonitis; e) clinical/functional assessment and rehabilitation principles. Clinical application and description of sports kinetics and kinematics in the most common sports.

- Orthopedic and sports strapping techniques. Clinical application of orthotics and description of sports taping for most common sports.

- Doping and ergonomic aids in sport.

- Clinical reasoning and design of functional rehabilitation programmes (I) a) Resistance training techniques, b) open and closed biokinetic chains, c) neuromuscular techniques and motor control, d) core stability exercises, e) sport and myofascial management. Case studies description.

- Clinical Reasoning and Design of Functional Rehabilitation (II) Programs Proposed by the American College of Sports Medicine (ACSM). Case studies description.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

Delivery	Thought class lectures	
Use of Information and Communication Technology (ICT)	Open e-class platform	
Teaching Organization Delivery	**Activity**	**Semester Workload**
	Lectures	110
	Workshop	50
	Laboratory Training	10
		10
	Total	
	Lectures	**180**

Use of Information and Communication Technology (ICT)	The theoretical part of the course is assessed by: ✓ written final examination (70%) which includes questionnaires that cover all the course material and are related to multiple-choice questions selection, right-to-wrong, filling in small sentences and words and developing a case study text ✓ Teamwork presentation (30%) The workshop part is evaluated with three mid-term evaluations (a) practical demonstration of clinical and functional evaluation methods, b) goal setting and demonstration of specific physiotherapeutic techniques, and c) design of functional rehabilitation programs in relation to biomechanical sport skills and specific features of the athlete (50%).

(5) SUGGESTED READING

- Suggested Reading:

- *Anderson M, Hall S. Sports Injuty Management. USA: William & Wilkinks.1995.*
- *Arnheim D. Modern principles of athletic training. USA: C.V. Mosby Co., 1992.*
- *Bloomfield J, Fricker P, Fitch K. Textbook of Science and Medicine in Sport. Australia: Blackwell Scientific Publication, 1992.*
- *Brotzman B and Wilk KE. Clinical Orthopaedic Rehabilitation. USA: C.V. Mosby Co., 2003.*
- *Cox R. Sport Psychology. USA: Brown Benchmark Publication, 1994.*
- *Hutson M. Sports Injuries. Recognition and Management. Oxford Medical Publications, 1990.*
- *Flegel M. Sport First Aid. Champaign, Ill: Leisure Press, 1992.*
- *Kibler W. The Sport Preparation Fitness Examination. Champaign, Ill: Human Kinetics Books, 1990.*
- *Φουσέκης Κ. Εφαρμοσμένη Αθλητική Φυσικοθεραπεία. Εκδόσεις Π.Χ. Πασχαλίδης, Αθήνα, 2015.*
- *Lephart S, Fu F. Proprioception and Neuromuscular Control in Joint Stability. Champaign, Ill: Human Kinetics, 2000.*
- *Kibler W, Herring S, Press J. Functional Rehabilitation of Sports and Musculoskeletal Injuries. USA: An Aspen Publication, 1998.*
- *Mcdonald R. Taping Techniques. Principles and Practice. Oxford: Butteworth Heinemann, 1994.*
- *Norris C. Sports Injuries. Diagnosis, Management for Physioterapists. Oxford: Butteworth Heinemann, 1994.*
- *Peterson L, Renstrom P. Sports Injuries. Their prevention and treatment. London: Martin Dunitz, 2001.*
- *Perrin D. Isokinetic exercise and assessment. USA: Human Kinetics, 1997.*
- *Prentice WE. Τεχνικές Αποκατάστασης Αθλητικών Κακώσεων. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου, 2007.*
- *Reilly T, Secher N, Snell P, Williams C. Physiology of Sports. USA: E. & F. N. Spon. 1990.*
- *Starkley C. Therapeutic Modalities for Athletic Trainers. F.A. Philadelhia: Davis Company, 1993.*
- *Taylor P, Taylor D. Conquering Athletic Injuries. Champaign. Ill, Leisure Press, 1988.*
- *Whiting W, Zernicke R. Biomechanics of Musculoskeletal Injury. USA: Human Kinetics. 1998.*
- *Αστέριος Δεληγιάννης. Ιατρική της άθλησης. Universtiy Studio Press. Third edition, 2016.*

- Related Journals:

- *Journal of Orthopaedics and Sports Physical therapy (JOSPT)*
- *Medicine and Sports in Exercise Science*
- *Journal of Sports Rehabilitation*
- *Sports Management*
- *Sports and Exercise Psychology*
- *Sports Sciences*
- *Journal of Sports Science and Medicine*
- *Journal of Sports Medicine and Physical Fitness*

Module Outline Of 'Biostatistics'

(1) GENERAL

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULE CODE	P1-6A10	**SEMESTER**	**6th**
MODULE TITLE	BIOSTATISTICS		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Theory (Lectures) - Practical	2	3
Total	2	3

MODULE TYPE	Elective
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE	Greek
SUITABLE FOR ERASMUS STUDENTS	
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The aim of the course is for the students to comprehend the basic concepts of the science of statistics and of probability theory and their application in research in the field of health sciences. The goal is to enable the students to absorb the teaching material and use their knowledge in their professional field, as well as in wider applications of biostatistics that are necessary for the study of health problems. After completing the course the students should: • Have basic knowledge about biostatistics and its application to the description and analysis of biolo variables in health sciences. • Understand the methodology of application of descriptive and conclusive statistical analysis in topi physiotherapy research and clinical practice.
General Competences - Learning Outcomes
• Analysis synthesis of data and information • Decision making • Teamwork

(3) MODULE CONTENT

- The role of statistics in medicine. Basic concepts, selection of statistical analysis, elements of designing medical research studies.
- Population and sample. Sampling methods and sampling error, types of variables.
- Collection and presentation of the statistical material (tables, graphs).
- Measures of position and scatter.
- Randomised experiments. Sampling spaces. The concept of probability.
- Probabilities, random variables (rv), distributions of rv and study of related parameters.
- Main discrete one-dimensional distributions (binary distribution, hypergeometric distribution, geometric distribution, negative binary distribution, Poisson distribution).
- Main continuous one-dimensional distributions (uniform distribution, exponential distribution, normal distribution).
- Confidence intervals. Hypothesis control (one mean value, one percentage, applications). Estimation of difference of mean values, estimation of difference of two percentages, applications.
- Non-parametric statistics (chi square – adaptation control, chi square – independence control, chi square – homogeneity control, applications).
- Dependence. Correlation. Simple linear regression.
- Introduction to analysis of variance.
- Non-parametric tests.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester workload**
	Lectures	60
	Practice	30
	Module Total	90
STUDENT ASSESSMENT	Final written examination: 70%. Practical: 30%	

(5) SUGGESTED READING

Suggested Reading:

- *Κατσουγιαννόπουλος Β. Βασική Ιατρική στατιστική. Εκδοτικός Οίκος Αδελφών Κυριακίδη Α.Ε., 2009.*
- *Altman G. Practical Statistics for Medical Research. Great Britain: Chapman & Hall, 1991.*
- *Bland M. An Introduction to Medical Statistics. Second Edition. Oxford Medical Publication, 2000.*
- *Cox DR, Oakes D. Analysis of Survival Data. Monographs on Statistics and Applied Probability. Chapmand and Hall, 1984.*
- *Everitt B, Dunn G. Statistical Methods of Medical Data: New developments. Arnold Publications, 1998.*
- *Fisher LD, Gerald van Belle. Biostatistics - Methodology for the Health Sciences. New York: Wiley 2004.*
- *Hsu JC. Multiple Comparisons. Theory and methods. Chapman and Hall, 1996.*

Related scientific journals:

- *The International Journal of Biostatistics*
- *American Journal of Biostatistics*

Module Outline of 'Pharmacology'

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-6Β10	**Semester**	6th
Module Title	Pharmacology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	3	**3**

Module Type	Elective Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The purpose of the module is for students to understand the functions of drugs in relation to the corresponding, per system, physiological mechanisms of the human body, emphasizing both the mechanisms of drug action for the specific system and the interactions of the drug with the other body systems. In particular, the teaching of pharmacology should aim at: (a) knowledge of the pharmacokinetics and pharmacodynamics of the drug; (b) mechanisms of absorption and excretion of the drug by the body; (c) interactions with other drugs; (d) adverse effects and their management; (e) indications with the dosages and contraindications of the drug administration. After having successfully completed the module, students will be able to: • Know the indicated drug administered depending on the patient's disease and clinical condition • Know how to manage any complications associated with the aberrations that will occur in their respective physiological mechanisms.
General Competences
• Independent work • Group work • Decision making • Analysis and synthesis of data and information, using necessary technologies

(3) MODULE CONTENT

The course content includes the following systems of the human body: Musculoskeletal, Nervous, Circulatory, Respiratory, Urinary and Reproductive, Digestive, Blood, Endocrine glands. The teaching of each system is based firstly by a brief, but precise, description of the physiology mechanisms of each system, which are essential for understanding absorption, action, excretion, and interaction with other concomitantly administered medications.

Pharmacokinetics, Pharmacodynamics, interactions with other medications, indications and contraindications as well as the management of the complications that may arise from the administration of the drug are analyzed and examined in detail for each system. The goal of teaching is directly related to both the content of the module and the potential to put into practice the knowledge required to be gained. For each specific body system, following the teaching of Pharmacology and the evaluation of the students' necessary knowledge, the students should be able to know the drug selected according to the present disease in order to achieve the following: 1) Musculoskeletal System: Improving and treating of muscle contraction mechanism and enhancement of bone tissue in order to avoid imminent muscle injury and/or bone fracture; 2) Nervous System: ensuring functionality of the remaining normal neural tissue by focusing on the pharmacology of nerve and neuromuscular synapses and ensuring nerve cell nutrition; 3) Circulatory System: improving and treating microcirculation of tissues at capillary level, improving myocardial function including the present pathological conditions such as ischemia, arrhythmias and infarction, treating and preventing of pathological conditions vessel wall and endothelial; 4) Respiratory system: improving and treating of respiratory gas exchange in connection with improved muscle function, preventing and treating of respiratory infections and occupational respiratory diseases, treatment of bronchial / allergic asthma, medication of obstructive and restrictive lung diseases; 5) Urinary and reproductive system: improving and treating of pathological conditions such as acute and chronic renal failure, urinary tract infections, and all diseases of the urinary and reproductive system requiring treatment, conservative or surgical in relation to maintaining their functioning; 6) Blood: treating and improving of anemia and hematopoietic neoplasms which adversely affect tissue

oxygenation and the application of therapeutic physiotherapeutic protocols; 7) Endocrine glands: improving and treating of chronic metabolic diseases to be considered in the application of physiotherapeutic protocols.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	90
	Total	90
STUDENT ASSESSMENT	Final written examination (100%) of all module content.	

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Greenstein B.Trounce's Κλινική φαρμακολογία για νοσηλευτές. Αθήνα: Εκδόσεις Παρισιάνου ΑΕ, 2007.*
  - *Netter Άτλας Βασικών Ιατρικών Επιστημών, Φαρμακολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2008.*
  - *Page C, Curtis M, Sutter M, Walker M, Hoffman B. Φαρμακολογία. Αθήνα:Εκδόσεις Π.Χ Πασχαλίδη, 2008.*
  - *Simonsen T, Aarbakke J, Kay I, Coleman I, Sinott P, Lysaa R. Νοσηλευτική Φαρμακολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2009*

7th SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	CLINICAL TRAINING IN NEUROLOGICAL P/T	SM	П1-7010	3	150	8	150	11	300	300	10
2	GERIATRIC PHYSIOTHERAPY	SM	П1-7020	3	180	-		3	180	180	6
3	PHYSIOTHERAPY IN SPECIAL POPULATIONS	SM	П1-7030	3	180			3	180	180	6
4	ADAPTED PHYSICAL ACTIVITY	SBM	П1-7040	3	150	-		3	150	150	5
	ELECTIVE MODULES										
6	DIAGNOSTIC IMAGING	EM	П1-7A10	2	90	-		2	90	90	3
	CLINICAL NUTRICION	EM	П1-7B10	2	90	-		2	90	90	3
TOTAL				**14**	**750**	**8**	**150**	**22**	**900**	**900**	**30**

Module Outline of 'Clinical Training in Neurological Physiotherapy'

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-7010	**Semester**	7th
Module Title	Clinical Training in Neurological Physiotherapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Interactive lectures	3	**10**
Clinical training - laboratory exercises	8	
Total	11	

Module Type	Specialty Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English), undertaking an essay
Module Website (URL)	https://eclass.uniwa.gr/courses/PHYS178/ https://eclass.uniwa.gr/courses/PHYS180/

(2) LEARNING OUTCOMES

Learning Outcomes
The module Clinical Training in Neurological Physiotherapy completes students' knowledge in the field of neurological diseases. The module content aims at consolidating students' already acquired theoretical knowledge in the neurological diseases of adults and children in a clinical setting. In this way students become familiar with (a) the approach to patients with neurological diseases, (b) clinical reasoning, (c) the plan of Physiotherapeutic intervention. After having successfully completed the module Clinical Training in Neurological Physiotherapy, students will be able to: • Associate theory with evidence- based knowledge in clinical practice. • Specify the purpose of the patient's individualized program. • Evaluate the outcome of therapeutic intervention based on sound clinical reasoning. • Interpret the pathological mechanisms of posture, movement and balance disorders as they occur in neurological patients. • Understand the clinical importance of the reassessment in terms of the effectiveness-appropriateness of the selected therapeutic intervention. • Study the patient's medical record in detail and interpret the findings of the clinical and laboratory tests. • Record and interpret the findings of the physiotherapeutic assessment, considering other clinical and laboratory findings in a clinical setting. • Monitor and keep patient's medical record. • Set goals according to the patient's course of therapy and develop a rehabilitation plan, recognizing the progress or not in the patient's condition and anticipated levels of improvement, setting short-and long-term goals. • specify the type and interpret the effect of physiotherapeutic intervention on neurological patients in different stages of rehabilitation, in different clinical conditions (ICUs, clinics, rehabilitation centers, physiotherapy centers etc.). • Incorporate modern clinical guidelines into the clinical practice of physiotherapy intervention in neurological patients. • Interact with the patient intentionally and effectively by establishing trusting relationships and providing a sense of safety. • Understand the special relationships between patient, therapist, and family. • act effectively and collaboratively within the interdisciplinary team as well as with other health care professionals. • Respect the rules of ethics and the medical confidentiality.
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Group work • Work in an interdisciplinary context • Planning and managing of physiotherapeutic interventions

(3) MODULE CONTENT

Theory

- **Introduction to clinical physiotherapy of neurological diseases.**
  - ✓ The role of physiotherapy in the rehabilitation of neurological diseases.
  - ✓ Principles, object, goals, rules of ethics - medical confidentiality.
  - ✓ Interdisciplinary approach
- **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, clinics, rehabilitation center (chronic diseases institutions), physiotherapy centers etc.
  - ✓ Relationships with other specialties.
- **Organization and equipment of physiotherapy centers.**
  - ✓ Pediatric physiotherapy equipment (balls, wedges, rolls, standing frames, etc.).
- **Assessment of the neurological patient.**
  - ✓ Assessment tests (categories). Subjective - objective evaluation. Co-assessment of the findings.
  - ✓ Physiotherapeutic assessment in the ICU, the clinics, in the rehabilitation center (chronic diseases institutions), in the physiotherapy center, in the patient's home - specific conditions.
  - ✓ Particularities of assessment in specific populations (neonates, infants, elders, mental retardation, neoplastic diseases, etc.). Physiotherapeutic evaluation in the various stages of rehabilitation (initial stage - relative recovery stage - chronic stage).
- **The contribution of technology to the rehabilitation of neurological patients.**
  - ✓ Contemporary therapeutic interventions for the management of disorders in muscle tone, proprioception, coordination, balance and gait (treadmill, balance platform, FES, computer-robotic systems, virtual reality systems etc.).
- **Motor disability, quality of life, self-service and independence.**
  - ✓ Factors to improve the quality of life of people with a motor disability.
  - ✓ Accessibility and ergonomics in the environment of the person with motor disability (home, work).
  - ✓ Assistive mobility devices (categories, types, use), orthotics, adaptation of the environment to the particular needs of the patient.
  - ✓ Urination, defecation disorders and their management. Sexual life and disability.
- **Physiotherapeutic approach of neurological diseases in different clinical conditions.**
  - ✓ Particularities of physiotherapeutic intervention in the intensive care unit (ICU), in the clinics, in the rehabilitation center (chronic diseases institutions), in the physiotherapy center, in the patient's home.
  - ✓ Principles - particularities of physiotherapeutic intervention in the various stages of rehabilitation.
- **Basic principles of rehabilitation in different age groups and Specific Populations - particularities.**
  - ✓ The pediatric neurological patient and its particularities. Basic principles of a physiotherapeutic approach in neonatal age, infancy, childhood, and adolescence.
  - ✓ Old Age. Basic principles of the physiotherapeutic approach. Upper cortical function disorders.
  - ✓ Psychiatric diseases. Psychomotor disorders. The Psychological Factor in Rehabilitation - Psychosynthesis.

- ✓ Family-physiotherapist relationships.

- **Establishment of a neurological rehabilitation program (case report).**
  - ✓ Setting of therapeutic goals (short term - long term) at different stages of rehabilitation (therapy scenarios).
  - ✓ Objectivity, adaptability of rehabilitation programs.
- **Physiotherapeutic intervention means and techniques (case reports).**
  - ✓ The effect of different means and techniques on muscle weakness, muscle tone, movement coordination, somatosensation, balance and gai.
  - ✓ Selection criteria – purpose.
- **Patients with multiple disabilities (case reports).**
  - ✓ Managing Patients with multiple disabilities - Goal Setting – Hierarchy.
- **Management of muscle tone disorders (case reports).**
  - ✓ Discrimination and management of muscle tone disorders in different categories of patients - lesions in each stage of rehabilitation.
  - ✓ Selection of therapeutic means-techniques for treating muscle tone disorders (classical therapeutic methods - modern means).
- **Management of coordination, balance and gait disorders (case reports).**
  - ✓ Discrimination and management of coordination, balance and gait disorders in different categories of patients - lesions in each stage of rehabilitation.
  - ✓ Selection of therapeutic means-techniques for treating coordination, balance and gait disorders (classical therapeutic methods - modern means).
- **Clinical reasoning and problem solving in the rehabilitation of neurological diseases. Relationship between theory and practice - practice and theory.**
  - ✓ The process of clinical reasoning and decision making in the rehabilitation of neurological diseases. Decision-making models, reasoning and solving problem strategies. Contemporary clinical guidelines.

Laboratory

- **Physiotherapeutic assessment at various stages of rehabilitation.**
  - ✓ Physiotherapeutic assessment of patients in ICU, clinics, rehabilitation center, physiotherapy center etc. Assessment at each stage of rehabilitation. Performance recording. Contemporary clinical guidelines.
  - ✓ Keeping a medical record - recording a course of treatment.
- **Differential assessment of neurological patients according to the type of the disease.**
  - ✓ Physiotherapeutic assessment of patients with lesion to the upper and lower motor neuron, extrapyramidal disorder, cerebellar lesion, etc. Distinction-differential assessment.
  - ✓ Assessment in specific population groups (infants, children, elderly etc.).
- **Management - treatment of muscle tone disorders.**
  - ✓ Management of Muscle Tone Disorders in Damages of the Upper and Lower Motor Neuron, Extrapyramidal Disorders, etc.
  - ✓ Practical application of therapeutic techniques and means to different clinical settings, age groups and therapy stages.
- **Management - treatment in disorders of neuromuscular coordination and balance.**
  - ✓ Management in disorders of neuromuscular coordination and balance in different lesions.

- ✓ Practical application of therapeutic techniques and means to different clinical settings, age groups and therapy stages.

- **Retraining the gait of neurological patients.**
  - ✓ Retraining of gait in different diseases - nervous system lesions (CNS, PNS, etc.).
  - ✓ Practical application of therapeutic techniques and means of gait retraining in different clinical settings, age groups and therapy stages. Use of special aids (orthotics, crutches, sticks etc.).
- **Management – treatment muscle weakness.**
  - ✓ Management of muscle weakness in different diseases - nervous system lesion (including neuromuscular diseases).
  - ✓ Practical application of therapeutic techniques and means of increasing muscle power in different clinical settings, age groups and therapy stages
- **Management - treatment of sensory-perceptual deficits.**
  - ✓ Management of sensory-perceptual deficits in neurological patients (sensory-perceptual deficits in vision, hearing, kinesthesia, tactile recognition, navigation, etc.).
  - ✓ Practical application of therapeutic techniques and means to different clinical settings, age groups and therapy stages.
- **Knowledge Consolidation - Introducing complex problems.**
  - ✓ Presentation and analysis of practical examples that contain the components already taught in the previous sections and performed in the form of clinical training. Contemporary clinical guidelines.
- **Mobilization - locomotion of a neurological patient.**
  - ✓ Practical application of mobilization techniques in different clinical settings, age groups according to the stage of rehabilitation.
  - ✓ Locomotion of the neurological patient. Techniques and means to facilitate transition to different positions. Particularities - limitations.
- **Applied use of laboratory - hospital equipment.**
  - ✓ Training in the use and practical application of laboratory, clinical, and physiotherapeutic equipment to patients.
- **Use of orthotics, prosthetics and aids.**
  - ✓ Training in the use of orthotics, prosthetics and aids (self-care, mobility) in neurological patients.
- **Applying specific therapeutic means to neurological patients.**
  - ✓ Electrical Stimulation Techniques - TENS, Electrical Muscle Stimulation, FES.
  - ✓ Biofeedback.
  - ✓ Hydrotherapy/Aquatic Therapy.
  - ✓ Treadmill, harnessed support systems, balance platforms etc.
  - ✓ Advanced computing and robotic systems.
- **Applying specific treatment techniques to neurological patients.**
  - ✓ Techniques to facilitate muscle activity and improve motor control: Tapping, passive stretching, joint compression, vibration, ice, vestibular stimulation, movement facilitation.
  - ✓ Techniques to normalize muscle tone and maintain soft tissue length: Stretching, taping, loading, positioning, pressure, vibration, ice, hot, massage etc.
  - ✓ Specific techniques - exercises: Frenkel, Cawthorne-Cooksey etc.
  - ✓ Constraint induced Movement Therapy (CIMT).
  - ✓ Neural tissue mobilization - Neurodynamics.
- **Therapy planning – specifying a therapeutic framework.**
  - ✓ Specifying the therapeutic strategy for problem solving.
  - ✓ Systems-theory based approaches (intervention concepts - physiotherapeutic methods). Task-oriented approach, holistic approach,

combined-eclectic approach etc.

- ✓ Planning of group therapeutic exercise programs.
- ✓ Clinical reasoning – evidence-based practice - justification.
- ✓ Contemporary clinical guidelines.

During clinical training, the student is required to deal with conditions that are accompanied by: Impaired muscle tone, movement incoordination, muscle weakness, balance dyscontrol, abnormal walking or a combination of the above. These conditions-diseases include:

- Static encephalopathies or degenerative diseases affecting the Central Nervous System (Cerebral Palsy, Stroke, TBI, Multiple Sclerosis, Parkinson's disease, brain tumors, etc.).
- Diseases - lesions affecting the control systems of muscle tone and muscle synergy (dyskinetic syndromes, ataxia, chorea, etc.).
- Diseases - disorders affecting the Peripheral Nervous System (Erb's palsy, neuropathies - neuropathies, Guillain-Barré, etc.).
- Spinal and neural tube defects (spina bifida, hydrocephalus, etc.).
- Spinal cord injuries (quadriplegia, paraplegia, Brown-Sequard, etc.).
- Chromosomal abnormalities (Down syndrome, Prader-Willi et al.).
- Neuromuscular diseases, myopathies - muscular dystrophies (Duchenne, Becker, spinal muscular atrophy, etc.).
- Neuromuscular junction diseases- myasthenia.
- Neurometabolic diseases (eg leukodystrophies).
- Psychomotor disorders and psychiatric disorders.
- Somatosensory - perceptual disorders (sensory-perceptual impairments of vision, hearing, kinesthesia, tactile recognition, navigation, etc.).
- Deficits of upper cortical-cognitive functions.
- Neurological changes associated with aging.

To manage the above, the student has many physiotherapeutic techniques and means available.

Physiotherapeutic techniques include (but are not limited to):

- Tactile-proprioceptive stimulation techniques.
- Techniques to facilitate muscle activity and improve motor control: Tapping, stretching, joint compression, vibration, ice, vestibular stimulation, movement facilitation.
- Techniques to normalize muscle tone and maintain soft tissue length: Stretching, tapping, weight-bearing, positioning, traction, compression, vibration, etc.
- Specific physiotherapeutic techniques based on systems-theory appoaches (PNF, Petto, NDT, Brunnstrom, Vojta, SI etc.).
- Specific techniques - exercises: Frenkel, Cawthorne-Cooksey etc..
- Protocols based on Constraint-induced movement therapy (CIMT).
- Neural tissue mobilization - Neurodynamics.

Physiotherapeutic means include (but are not limited to):

- Physical agents: hot - cold packs (thermotherapy - cryotherapy), hydrotherapy etc.
- Electrical Stimulation (TENS, FES etc.).
- Biofeedback.
- Treadmill, harnessed support systems.
- Specific aids to facilitate locomotion and gait training.
- Balance platforms.
- Orthotics-Prosthetics.

• Specific means and assessment tests

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	90
	Placement in clinical context (hospitals)	180
	Submission of project(s)	30
	Total	**300**
STUDENT ASSESSMENT	**The theoretical part of the module** is assessed by: ✓ final written examination (70%), including multiple choice questions, true-or-false questions, gap-filling and open-ended questions ✓ Presentation of a team project (30%) **The laboratory part** is evaluated on patients in a daily base (assessment methods, application of physiotherapy techniques) to evaluate the competence of the skills taught to students	

(5) SUGGESTED READING

- *Suggested Reading:*
  - *Βασιλόπουλος Δ. Νευρολογία - Επιτομή θεωρίας και πράξης. Ιατρικές εκδόσεις Π.Χ. Πασχαλίδης, Αθήνα 2003.*
  - *Λογοθέτης Ι., Μυλωνάς Ι. Νευρολογία Λογοθέτη. 4η έκδοση, University Studio Press, 2004.*
  - *Barnes M., Johnson G. Σύνδρομο Ανώτερου Κινητικού Νευρώνα και Σπαστικότητα. Εκδόσεις Παρισιάνου, 2008.*
  - *Braddom R. Physical medicine and rehabilitation. Saunders, 3rd edition, 2006.*
  - *Bromley I. Τετραπληγία και παραπληγία, Έκδοση: 6η Εκδόσεις Παρισιάνου, 2011*
  - *Car J., Shepherd R. Νευρολογική Αποκατάσταση. Βελτιστοποίηση των Κινητικών Επιδόσεων. Έκδοση: 2η Εκδόσεις Παρισιάνου, 2017*
  - *Deborah S. Nichols-Larsen. Νευρολογική αποκατάσταση. Νευροεπιστήμες και Νευροπλαστικότητα στη Φυσικοθεραπεία. Εκδόσεις Κωνσταντάρας-Ιατρικές εκδόσεις , 2017*
  - *Edwards S. Neurological Physiotherapy. A problem-solving approach. Churchill*

Livingstone, 2nd edition, 2002.

- *Gabard D., Martin M. Physical therapy ethics. F. A. Davis Co, 1st edition, 2003.*
- *Jewell D. Guide to evidence-based physical therapy practice. Jones & Bartlett publishers, 1st edition, 2007.*
- *Levitt, S. Θεραπεία της εγκεφαλικής παράλυσης και της κινητικής καθυστέρηση. Έκδοση: 5η Εκδόσεις Παρισιάνου, 2014*
- *Martin and Kessler. Φυσικοθεραπευτικές Παρεμβάσεις σε Ασθενείς με Νευρολογικές Παθήσεις. Εκδόσεις Κωνσταντάρας-Ιατρικές εκδόσεις , 2015*
- *Montgomery P., Connolly B. Clinical applications for motor control. Slack incorporated, 2nd edition, 2002.*
- *Scrutton, D. Damiano, D. Mayston M. Αντιμετώπιση των κινητικών διαταραχών στα παιδιά με εγκεφαλική παράλυση, Έκδοση: 2η Εκδόσεις Παρισιάνου, 2009*
- *Shumway A. Κινητικός Έλεγχος, από την Έρευνα στην Κλινική Πράξη. Εκδόσεις Πασχαλίδης 2011*

- *Related scientific journals:*
  - *Archives of Physical Medicine and Rehabilitation*
  - *Brain*
  - *Brain Disorders & Therapy Journal*
  - *Clinical Rehabilitation*
  - *Gait and Posture*
  - *Neuromuscular Disorders*
  - *Neurorehabilitation Journal*
  - *Journal of Applied Physiology*
  - *Journal of Neurologic Physical Therapy*
  - *Journal of Neurology*
  - *Journal of Pediatric Orthopaedics*
  - *Journal of Rehabilitation Research and Development*
  - *Journal of Rehabilitation Medicine*
  - *Journal of Neurology Neurosurgery Psychiatry*
  - *Stroke Research & Therapy*
  - *Therapeutic Advances in Neurological Disorders*
  - *Physical Therapy (APTA, America)*
  - *Physical Medicine and Rehabilitation*
  - *Physiotherapy Theory and Practice*

Module Outline of 'Physiotherapy in Geriatric Physiotherapy

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-7020	Semester	**7th**
Module Title	Geriatric Physiotherapy		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (lectures)	Theory: 3	3

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The module of Geriatric Physiotherapy is a basic module in preparing students for the holistic treatment of older adults, staffing interdisciplinary teams for the prevention and treatment of conditions, injuries and illnesses associated with the aging process.

Also for their participation in information campaigns and the establishment of priorities for healthy aging.

The course content aims to train students in specific adult issues:

- current epidemiological data on their associated health problems,
- the particular effects of exercise on their physiological and functional adaptations
- changes in their mental well-being and generally their quality of life
- utilizing global guidelines for the management and self-management of their perceptual and motor problems
- in the methodological design and development of research documented intervention programs for the treatment, recovery, self-service and safe participation in their daily lives and
- the role of physiotherapy in improving the quality of life of elderly people.

Students after successfully completing the module they will be able to:

A.

- understand the impact of aging on the biological structures, motor and cognitive skills of the elderly
- record and take into account skeletal, kinetic adaptations, behavioural, mental using appropriate recording and evaluation tools
- have the flexibility to adapt specialized Physiotherapeutic skills to the evaluation and rehabilitation of older persons
- design proven intervention programs with exercise, skills training such as safe movement and counselling aimed at preventing falls, improving balance, increasing confidence, reducing fear of falling and promoting an active and healthy lifestyle for older people
- play a decisive role in clinics, such as fall clinics, which provide a comprehensive assessment, identifying underlying pathologies (such as osteoporosis) and referring to other specialised services as well as providing individual advice, motivation and support
- organize physiotherapeutic interventions for prevention and rehabilitation of common pathologies and disorders associated with advanced age
- implement rehabilitation programs, working appropriately with scientists staffing science support teams for the elderly, falls clinics, hospital and rehabilitation structures
- identify the short- and long-term goals of physiotherapy intervention in older people
- be able to collect, interpret and synthesize evaluation results from an osteoporotic, sarcopenic, demented patient with the appropriate clinical reasoning
- be able to make decisions on unforeseen events of the above patients

B. They will understand the need for:

- organized multifactorial interventions for reducing falls
- these interventions, as they will reduce the cost of hospital admissions or care services

(3) MODULE CONTENT

- Physiology, biology, biomechanics, psychology, pathophysiology and theories of aging. Cardiovascular / respiratory, excretory, metabolic, musculoskeletal and neuromuscular features.
- Communication issues related to patient / client intelligence, language and learning abilities.
- Common medical conditions in older people, arthritis, osteoporosis, skeletal-articular problems, sarcopenia, dementia, stroke, Parkinson's, Alzheimer's, diabetes, urinary incontinence, anxiety, depression, chronic disability, prolonged bed rest/ Common surgeries, such as cataract, pacemaker, arthroplasty. Restrictions on vulnerable elderly. Design of Physiotherapeutic Assessment and Intervention.
- Assessment and management of older adults with multiple and / or complex medical conditions or syndromes, including but not limited to delirium, dementia, including behavioral and psychological symptoms, mild cognitive impairment (MCI), falls and mobility bladder issues, immobility, pain and complications of palliative care and end-of-life care, mood disorders and other psychiatric manifestations, osteoporosis and metabolic bone disorders, preoperative and postoperative orthopedic management. Assessment of cognitive functions, mental state and vulnerability.
- Collaboration with specialists providing targeted research and interventions on special issues in older adults such as Vascular Surgery, Hematology, Radiodiagnosis, Radiotherapy Oncology, Allergology, Anesthesiology, Gastroenterology, Obstetrics-Gynecology, Microbiology (Medical Biopathology), Neurology, Neurosurgery, Nephrology, Nursing, Family Medicine, Orthopedics, Urology, Ophthalmology, Pathology, Plastic Surgery, Pulmonology, Nuclear Medicine, Rheumatology, Physical Medicine and Rehabilitation, Surgery, Psychiatry, Psychology, Otolaryngology.
- Interdisciplinary approach to third and fourth age issues: drugs and polypharmacy, information on relevant interdisciplinary clinical guidelines, safety, hygiene and prevention, bedsores and falls, anxiety and carer problems. Recruitment of bodies such as retirement homes, protection centers, hospitals, Community agencies (eg, clubs, Arthritis Institutions, Osteoporosis, Dementia, Fall Prevention, Geri-Olympics), social policy organizations, legal matters.
- Physiotherapeutic evaluation with the international system S.O.A.P. (Subjective, Objective Assessment, Progress), taking into account multiple physical, mental/ psychiatric, functional, and / or social problems, clinical prognosis, and the wishes of the elderly as well as taking into account other available data such as detailed neurological examination.
- Assessment of mobility, basic skills and balance using standard, valid and reliable instruments.
- Consideration of assessments of vision, hearing, and cognitive status. Assess cognitive function, taking into account psychiatric disorders, including mood disorders and behavioral and psychological symptoms of dementia using standardized, valid and reliable measures.
- Recognize opportunities to promote health and disease prevention in older people as well as promote their health based on documented evidence, including but not limited to regular physical and mental exercise, appropriate nutrition and vaccination.
- Interpretation of nutritional evaluation. Estimation of malnutrition and sarcopenia. The role of nutritional supplements in people over 75 years, hydration in the oldest old , nutrition support in hospitalized elderly patients. Nutrition as a means of preventing and treating sarcopenia and sarcopenia obesity.
- Exercise and maintain muscle mass.
- Community Geriatric Physiotherapy - Group programs
- Fall risk assessment. Aging and preventing falls. Exercise as the only physiotherapeutic intervention in the risk of falls and in combination with other interventions, such as dietary supplements, ergonomic space modifications, group intervention programs. Research documentation.
- Physiotherapist involvement in osteoporosis and falls clinics. Use scales, evaluation tools, such as the Fracture *Risk Assessment* tool (*FRAX*). Assessment for urinary and / or faecal incontinence.
- Postoperative physiotherapeutic intervention such as after pacemaker, cataract, fracture surgery.

- Understanding communication problems due to mental, aesthetic malfunctions, behavioral and racial or other differences
- Understand the problems of access to primary care and chronic, complex problems, physical and mental health, social problems and racism for the elderly
- More specific knowledge of clinical geriatric physiotherapist
- Need for coordination, communication and intervention skills focusing on the needs of the elderly, including:
    - Interact with patients / clients, relatives, other health care providers and community organizations in order to coordinate activities to facilitate efficient and effective care of the client or patient
    - Contribute to the physiotherapist's patient management process to make use of community resources and health services
    - Communicate effectively with patients, clients, family members, carers, therapists, consumers, and policy makers about with Geriatrics topics
    - Discusses the rationale for physiotherapeutic evaluation and intervention, using best current and / or documented practice with patients / clients and families, other healthcare professionals, and financial resource managers
    - Collaborate as a member of the healthcare team to ensure physiotherapy as part of an integrated geriatric care plan
    - Adapted to the literacy level of the elderly; 7 Completes detailed, accurate, safe, concise and timely recording in accordance with the guidelines and in collaboration with the hospitality / rehabilitation structure (eg, contacting financial resource managers to maximize treatment services, legal protection of staff, patients, and structure.
- Provide guidance in collaboration with specialist bodies / scientists: 1. on diagnosis, prognosis and intervention strategies 2. for the understanding of individual abilities, functional limitations or disabilities 3. with the objective of risk prevention / reduction as well as promotion 4. to judge the use of the Internet and other information available in the Community 5. To adapt the guidelines on the situation (eg, learning modes, patient or carer practice, use of audio and visual aids, , Illustrated Guidelines, Culturally Sensitive Approach) 6. the following specialized areas of geriatric physiotherapy (eg, fall prevention, bone health, geriatric athlete, capacity building, foot care) 7. Maintain an updated knowledge base on health services as defined by the Ministry of Health and Welfare or and providing education to patients, caregivers, health professionals and the public on the role of physiotherapeutic interventions.

Techniques / Procedures for Physical Therapy:

- Therapeutic exercise, including but not limited to: a) aerobic fitness / endurance, fitness (eg walking / moving training, increased workload, treadmill, and energy saving guidelines) b) balance, coordination, and flexibility (e.g., fall risk reduction and training, neuromuscular training or retraining, perceptual training, posture awareness training, sensory training or retraining, standardized, complementary training approaches, exercise-oriented training activity)
- Vestibular rehabilitation
- Elderly body engineering and orthostatic stabilization (eg lifting techniques for carers, orthostatic stabilization activities, awareness of posture). Walking and moving training (eg walking, wheelchair, fall prevention)
- Facilitation techniques in neuromotor development (eg, motor training, motor patents, restrictive physiotherapy, neuromuscular training, or retraining)
- Training of endurance and strength of head, limbs, pelvic floor, neck, muscles, and respiratory muscles (e.g., active, assisted, active and resistance exercise, water exercise, complementary activity-based exercise approaches)
- Practicing self-care and home management including: (a) modification of restrictions (eg, environmental modification); (b) training in the use of equipment and equipment (e.g., friction-reducing devices / lifts, auxiliaries) during ADL and IADL, orthodontic, protective, or supportive

devices or equipment during self-service c) operational retraining programs (eg simulated environment, bed mobility, floor mobility, transport) d) injury reduction or reduction (eg self-care and use of home appliances and equipment, safety and energy saving, prevention and training to reduce harmful falls)

- Motion Techniques implantation, which may include: (a) lymphatic drainage; (b) mobilization / manipulation (eg, soft tissue, spine, and peripheral joints) - limitations on their application.
- Drainage techniques, treating shortness of breath.
- Techniques for preventing and treating wounds

Functional training at work, in the community, recreation or reintegration, including but not limited to:

- Functional training programs (eg simulated environment and adaptation activities, retraining; cardiopulmonary resuscitation, coordination, fine mobility)
- Prevention or reduction of injuries (eg during work, in the Community and recreation, using devices and equipment); awareness of safety at work and recreation.

Recommendation, implementation, and possibly assembly / modification of divices and equipment. These may include:

a) hospital beds, toilet seats, ramps, lifts / environmental controls, b) auxiliaries (eg, bacteria, static and dynamic splints, wheelchairs) c) orthopedic devices d) prosthetic devices (upper, lower limbs) (e) protective devices (eg, cushions, helmets, straps); (f) supporting devices (eg, compression garments, collars, straps);

Participation in welfare activities for the third and fourth age, social policy issues, exploitation of financial resources (individual and community) for the acquisition of suitable equipment.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

Delivery	Face to Face
Use of Information and Communication Technology (ICT)	Open e-class platform
Teaching Organization	

Activity	*Semester Workload*
Lectures Interactive teaching	180
Study and literature analysis	
Total	180

Student Assessment	Module theory is assessed by a written final examination (100%), which may include: ✓ Multiple choice questions ✓ Short answer questions or essay-type questions ✓ Comparative evaluation of theoretical elements

(5) SUGGESTED READING

- *Ασημακόπουλος Δ. Σύγχρονη ΩΡΛ Γηριατρικής Εκδόσεις ΡΟΤΟΝΤΑ 2016*
- *Χανιώτης Φρ., Χανιώτης Δ., Γηριατρική. Εκδόσεις: Κ. & Ν. Λίτσας Ο.Ε., 2012.*
- *Σακελλάρη Β. Γώγου Β. Θεραπευτικές Τεχνικές Μάλαξης. Εκδόσεις Παρισιάνου, 2004.*
- *Bottomley J, Lewis C. Geriatric Rehabilitation: A Clinical Approach. 3rd ed. Upper Saddle River, NJ: Pearson Prentice Hall; 2008*
- *Bottomley JM, Lewis CB. Orthopaedic Treatment Considerations. In: Geriatric Physical Therapy: A Clinical Approach. East Norwalk, CT: Appleton and Lange; 1994:327-352.*
- *Brill P.A. Σωστή άσκηση στην τρίτη ηλικία (Τσούρλου Θ., επιμ.). Champaign, IL: Human Kinetics. 2004.*
- *Ciccone CD. Pharmacology in Rehabilitation. 4th edition. Philadelphia, PA: F.A. Davis;2007*
- *Conil, N. Nicholl, C. Webster, S. Wilson K.J. Γηριατρική. Εκδόσεις: ΠΑΡΙΣΙΑΝΟΥ, 2006*
- *Daniels, D. Exercises for Osteoporosis. New York: Healthy Living Books; 2005.*
- *Gillespie, LD, Robertson, MC, Gillespie, WH, Sherrington C, Gates S, Clemson LM, Lamb SE. Interventions for preventing falls in older people living in the community. Cochrane Database of Systematic Reviews 2012, Issue 9. Art. No.: CD007146.DOI: 10.1002/14651858.CD007146.pub3.*
- *Guccione A. Geriatric Physical Therapy. 2nd edition. Philadelphia, PA: Mosby; 2000.*
- *Jager TE, Weiss HB, Coben JH, Pepe PE. Traumatic brain injuries evaluated in U.S. emergency departments, 1992– 1994.*
- *Stevens JA, Corso PS, Finkelstein EA, Miller TR. The costs of fatal and nonfatal falls among older adults. Injury Prevention2006a;12:290–5.*
- *Tromp AM, Pluijm SMF, Smit JH, et al. Fall-risk screening test: a prospective study on predictors for falls in community dwelling elderly. Journal of Clinical Epidemiology 2001;54(8):837–844.*
- *Umphred DA. Neurological Rehabilitation. 5th edition. Philadelphia, PA: Elsevier Mosby;2007*
- *Wolinsky F D, Fitzgerald J F, Stump T E. The effect of hip fracture on mortality, hospitalization, and functional status: a prospective study. American Journal of Public Health 1997.*
- *Κατευθυντήριες γραμμές για τη διάγνωση της οστεοπόρωσης στην Ελλάδα, Αθήνα 2014, Μονογραφία, Εκδόσεις: ΕΛΙΟΣ*
- *Academic Emergency Medicine 2000;7(2):134–40.*
- *A Normative Model of Physical Therapist Professional Education: Version 2004. Alexandria,*

VA: American Physical Therapy Association; 2004.

- *World Health Organisation. WHO Global Report on Falls Prevention in Older Age. Geneva: World Health Organisation; 2007.*
- *http://www.csp.org.uk/professional-union/practice/evidence-base/physiotherapy-works/falls-and-frailty Physiotherapy works: Falls and frailty | The Chartered Society of Physiotherapy. Physiotherapy reduces falls, addresses frailty and restores independence. AGILE Charter Society of Physiotherapy.*

- *Related Journals:*

- *Age Ageing*
- *Alzheimers Disease & Parkinsonism Journal*
- *Archives of Gerontology and Geriatrics*
- *BMC Geriatrics*
- *Geriatric Rehabilitation*
- *Journal of Chronic Diseases*
- *Journal of Geriatric Physical Therapy*
- *Journal of the American al Society*
- *Journal of Rheumatology*
- *Physical Medicine and Rehabilitation*
- *Reviews in Clinical Gerontology*
- *Vestibular Rehabilitation*

Module Outline of 'Physiotherapy in Special Populations'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-7030	Semester	**7th**
Module Title	Physiotherapy in Special Populations		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	2	
Workshops	1	
Total	3	6

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning outcomes
The course is an introduction to the education of students on issues related to the concept of the different physiotherapeutic approach of the patient with particular medical conditions that may follow his health index. During the course, students are given the opportunity to come into contact with and analyze in detail particular units such as physiotherapy in childhood and adolescence, pregnancy, female and male urinary incontinence, burns, amputations, cancer-related
diabetes related, dialysis-related and immune deficiency-related patients as well as mental health patients. The aim of the course is to acquire the skills to find relevant articles and bibliography and to understand complex clinical cases. Upon successful completion of the course, the student will: • Understand the basic concepts of the Special Disease Entity • Understand the importance of physiotherapeutic evaluation in holistic treatment of findings • Acquire participation skills and therapeutic approaches • Have the ability to analyze simple concepts and synthesize therapeutic regimens • Have the ability to work with his / her peers to analyze and present issues related to interdisciplinary expert collaboration populations • Be able to take responsibility for making unforeseen events for the above patients
General Competences
•Analysis and synthesis of data and information •Decision making • Independent work •Teamwork

(3) MODULE CONTENT

- Physiotherapy in Gynecology
- Physiotherapy in Obstetrics
- Physical therapy and pregnancy, Therapeutic exercise before and after childbirth
- Physiotherapy and female / male urinary incontinence
- Upper / lower limb amputations, Intentions
- Burns and physiotherapy
- Diabetes and Physiotherapy,
- Acquired immune deficiency and physiotherapy
- Hemophilia and physiotherapy
- Oncology and physiotherapy
- Mental illness and physiotherapy
- Hemodialysis and physiotherapy
- Peculiarities in developmental therapeutic exercise
- Splints and physiotherapy
- Therapeutic exercise in water - hydrotherapy - bath therapy

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>Delivery</td><td>Face to Face</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>Teaching Organization Delivery</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>110</td></tr>
<tr><td>Workshops</td><td>30</td></tr>
<tr><td>Teamwork in bioethics analysis and legislation study</td><td>20</td></tr>
<tr><td>Small individual comprehension tasks</td><td>20</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total</td><td>180</td></tr>
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Use of Information and Communication Technology (ICT)	The theory of the course is evaluated with ✓ Written final examination (50%) which includes questionnaires covering all the course material related to multiple choice, right-to-wrong questions, filling in the blanks and essay-type questions ✓ Teamwork presentation (50%)

(5) SUGGESTED READING

- *Suggested Reading:*

- *P.Williamson. θεραπευτική άσκηση για ειδικούς πληθυσμούς. Αθήνα: Εκδόσεις Κωνσταντάρας 2016*
- *Kisner Carolyn, Colby Lynn Allen. Θεραπευτικές ασκήσεις. Αθήνα: Εκδόσεις Σιώκης 2003*

Module Outline of Adapted Physical Activity

(1) General

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-7040	Semester	**7th**
Module Title	Adapted Physical Activity		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	2	4
Workshops	1	1
Total	3	5

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) Learning Outcomes

Learning Outcomes
Upon completion of the course, students should be able to: • Know the role and the goals of adapted physical activity in the life of people with special needs. • Associate theory with substantiated knowledge of physical activity in disability • Understand the importance of the interdisciplinary / holistic approach to disability. • Assess physical fitness and fundamental kinetic patterns of people with

special needs and interpret the results of the evaluation.

- Set short- and long-term goals where appropriate.
- Design a personalized program of physical activity, fundamental kinetic models, fluid element skills, games and sports for a lifetime of engaging in sports activities that promote the physical health and well-being of people with disabilities.
- Use adaptations to goals, activities and teaching to ensure the safe and successful participation of people with disabilities of all ages.
- Follow a holistic approach with appropriate exercise adjustments for:
    - ✓ development of physical and motor skills
    - ✓ development of physical skills
    - ✓ maintaining and developing physical and mental health entertainment
    - ✓ utilizing leisure time
    - ✓ integration of the disabled person
    - ✓ socializing the disabled person

General Competences

- Analysis and synthesis of data and information
- Decision making
- Independent work
- Teamwork
- Design and management of Physical Activity interventions

(3) Module Content

- Introduction to Physiotherapy in Special Populations (PSP)
- Kinetic evolution.
- Assessment of fitness for the disabled.
- Developmental Coordination Disorder: Evaluation, design and implementation of PSP programs.
- Mental Disability: Evaluating, designing and implementing PSP programs.
- Autism: Evaluation, design and implementation of PSP programs
- Cerebral Palsy: Functional Assessment Tools / Tests, Design and Implementation of Personalized PBS Programs
- Therapeutic Horse Riding - Therapy and Therapeutic Swimming in neurodevelopmental disorders. Experimental workshop in equestrian club and pool.
- Sensory completion.
- Sensory disorders: Evaluation, design and implementation of PSP programs.
- Attention Deficit Hyperactivity Disorder (ADHD): Evaluation, Design and Implementation of Personalized PFD Programs
- Epilepsy Evaluation, design and implementation of PSP programs
- Evaluation, design and implementation of personalized PSP programs in Attention Deficit Hyperactivity Disorder - ADHD.

- Evaluation, research documentation and implementation of personalized PSP programs in respiratory diseases.

(4) Teaching and Learning Methods – Assessment

Delivery	Face to Face
Use of Information and Communication Technology (ICT)	Open e-class platform
Teaching Organization	Activity: Lectures — Semester Workload: 120 Activity: Workshops — Semester Workload: 30 Activity: Total — Semester Workload: **150**
Student Assessment	The course is assessed with: ✓ written final examination (70%) by administration of questionnaires that cover all the content of each course and relate to multiple choice questions, right-wrong answers, fill in the blanks, and essay type questions ✓ Teamwork presentation (30%)

(5) Suggested Reading

- Suggested Reading:

- *Σκορδίλης Ε, Γραμματοπούλου Ε. Η ένταξη μαθητών με αναπηρία στη Φυσική Αγωγή. Αθήνα: Εκδόσεις Πεδίο, 2015.*
- *C. Sherrill (2004). Μετάφραση –Επιμέλεια: Ευαγγελινού Χ. Προσαρμοσμένη Φυσική Δραστηριότητα, Αναψυχή και Αθλητισμός. Εκδόσεις Πασχαλίδης, 2014.*
- *Horvat M, Block M, Kelly L. Μετάφραση – Επιμέλεια: Σκορδίλης Ε, Γραμματοπούλου Ε. Μέτρηση και αξιολόγηση στην Προσαρμοσμένη ΦυσικήΑγωγή. Αθήνα. Εκδόσεις Τελέθριον, 2011.*
- *Gallahue LD. Ozmun CJ. Understanding Motor Development. Infants, children, adolescents, adults. 7th Edition. New York: Humanities & Social Sciences, 2012.*
- *Henderson SE, Sugden D. Movement Assessment Battery for Children. 7th Edition. London: Pearson, 2007.*
- *Robert H. Bruininks. Oseretsky test of motor proficiency: Examiners manual. 2nd Edition. MN: Circle Pines AGS Publishing, 2005.*
- *Winnick J. Brockport Physical Fitness Test Manual: A Health-Related Test for Youths with Physical and Mental Disabilities. USA: Human Kinetics, 1999.*
- *Sherrill C. Adapted Physical Education and Recreation. A Multidisciplinary Approach (5th ed). Dubuque, IA: Wm. C. Brown, 1998.*
- *Winnick JP, Short FX. (Physical fitness testing of the disabled: project unique. Champaign, IL: Human Kinetics, 1995.*

- Related Journals:

- *Adapted Physical Activity Quarterly*
- *European Journal of Adapted Physical Activity*

Module Outline Of 'Diagnostic Imaging'

(1) **GENERAL**

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULE CODE	P1-7A10	**SEMESTER**	**7th**
MODULE TITLE	DIAGNOSTIC IMAGING		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Lectures - Practice	2	3
Total	2	3

MODULE TYPE	Elective
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE	Greek
MODULE SUITABLE for ERASMUS STUDENTS	NO
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The aim of the course is to present to the students the methods and the systems of Diagnostic Imaging (Chest X-ray, Computed Tomography, MRI), with emphasis on those that have applications in diseases associated with the specialty of Physiotherapy, as well as the possibilities for diagnosis and treatment implemented by the Diagnostic Departments. The aim of the lesson is to make sure that students have all the necessary knowledge to be able to evaluate the findings of imaging techniques after applying the physiotherapy protocols compared to the beginning of the programs.
General Competences - Learning Outcomes
• Individual work • Teamwork • Decision making • Searching, analyzing and composing of data and information using the appropriate technological means**.**

(3) MODULE CONTENT

The module content is as follows:

- X-rays:
  - ✓ evaluation of pulmonary parenchyma, both in terms of homogeneity (in the presence of shadows or clarifications)
  - ✓ evaluation of the position of the trachea, whether it is displaced right or left, and the position of the two main bronchi
  - ✓ evaluation of the width and contour of the heart and aorta, elements that suggest or reject the possibility of large heart, heart failure or aneurysms in large vessels such as the aorta
  - ✓ The evaluation of pulmonary parenchyma also includes the detection of evidence suggesting neoplasm / fluid / abscess
- Computed Tomography: Computed tomography can be either simple or using a CT contrast agent. Computed tomography gives a detailed record of the position and anatomy of the organs in the anatomical compartment (skull, thorax, abdomen) which is examined accordingly. Computed tomography features the same features as chest X-rays but with a much higher resolution, which increases even more when used with a contrast agent. Computed tomography does not diagnose in situ tumor neoplasia, therefore, the CT should be repeated every three months if the condition is present. Computed tomography examines the patient's progress after applying the physiotherapy protocol.
- Magnetic Resonance Imaging / MRI: Helps to enlarge the test organ and is the most reliable test both diagnosis and follow-up of the test organ following the application of any treatment, including physiotherapy protocols. A contrast agent is used to perform the magnetic resonance imaging.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence

USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platforms	
TEACHING ORGANIZATION	**Activity a**	**Semester workload**
	Lectures	90
	Course Total	90
STUDENT ASSESSMENT	Final written examination (70%) Practical part (30%)	

(5) SUGGESTED READING

Suggested Reading:

- *Greenstein B.Trounce's Κλινική φαρμακολογία για νοσηλευτές. Αθήνα: Εκδόσεις Παρισιάνου ΑΕ, 2007.*
- *Netter Άτλας Βασικών Ιατρικών Επιστημών, Φαρμακολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2008.*
- *Page C, Curtis M, Sutter M, Walker M, Hoffman B. Φαρμακολογία. Αθήνα:Εκδόσεις Π.Χ Πασχαλίδη, 2008.*
- *Simonsen T, Aarbakke J, Kay I, Coleman I, Sinott P, Lysaa R. Νοσηλευτική Φαρμακολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2009. Pitt-Brooke J, Reid H, Lockwood J, et al. Rehabilitation of movement. Theoretical basis of clinical practice. Philadelphia: W.B. Saunders Company, 1998.*
- *Ryf C, Weymann A. Εύρος κίνησης-ουδέτερη-ο-μέθοδος της Α.Ο. μέτρηση και τεκμηρίωση Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2004.*
- *Schoen J, Pearl L. Keep Calm and Stretch: 44 Stretching Exercises to Increase Flexibility Relieve Pain, Prevent Injury, and Stay Young! USA: Little Pearl Publishing, 2012.*
- *Snyder KT, Goodman C. Differential diagnosis in physical therapy. 4th Edition. Philadelphia: W.B. Saunders Company, 2007.*

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Module Outline of 'Clinical Nutrition'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-7Β10	Semester	**7th**
Module Title	Clinical Nutrition		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures, Workshops	2	3

Module Type	Special Core Module
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
Clinical Nutrition is a specialized field of Nutrition that focuses on the essential components of food, physical health, cognitive and mental health. This field of study examines all types of nutritional elements such as carbohydrates, proteins, fat and all of the nutrients (water, vitamins, electrolytes, etc.) related to health problems and metabolism such as weight control (obesity, anorexia), nutriton-related problems related to exercise in different population groups (diabetes, asthma, cardiovascular problems, muscle and joint problems, hormonal problems, etc) and specially designed exercise programs for hygiene and weight control.
This module provides to students the opportunity to learn the physiological basis of energy expenditure in population health conditions. As well as, it explores the assessment methods related to metabolism and body composition for maintaining physical, mental health and well-being. Students after successful completion of the Clinical Nutrition module they will: • Have acquired knowledge of nutrition science • Be able to identify and quantify the energy expenditure of metabolism • Be able to understand, select and apply energy metabolism assessment methods • Be able to collect, interpret and synthesize the results of nutritional assessment in relation to health problems and the participation of specific populations in exercise • Be able to determine through clinical reasoning short-term and long-term nutritional goals related to exercise and immobilization
General Competences
• Analysis and synthesis of data and information • Clinical decision making • Independent work • Teamwork • Planning and managing the human body's nutritional needs in relation to exercise-related health problems.

(3) MODULE CONTENT

- Introduction to the course of Clinical Health Nutrition and its relation to Health. A historical overview of the theoretical basis of Nutrition in relation to the developmental needs of the human species.
- The response of nutrition to the normal systems of the human body for health promotion and exercise.
- Energy expenditure (calories), energy systems and metabolism during rest and exercise.
- Nutrition and carbohydrates.
- Nutrition and protein.
- Nutrition and fat
- Categories of nutrients: Water and electrolytes.
- Categories of nutrients: Vitamins and physical performance.
- Nutrition evaluation systems.
- Body weight composition and evaluation methods (fat measurement methods)
- Clinical Nutrition and Health Problems in Special Populations:
  Exercise- metabolism and asthma
  • Clinical Nutrition and health problems in specific population groups: obesity - achieving optimal weight.
  • Clinical Nutrition and Health Problems in Special Populations: Cardiovascular Problems
  • Clinical Nutrition and Health Problems in Special Populations: Diabetes
  • Clinical Nutrition and Health Problems in Special Populations: Hormonal Problems
  • Clinical Nutrition and Health Problems in Special Populations: Muscle and Joint Problems
  • Clinical reasoning and nutritional adjustments during exercise and immobilization.
  Definition of exercise and prevention programs in relation to nutrition - ACSM (American College of Sports Medicine) guidelines.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>Delivery</td><td>Taught class lectures</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>Teaching Organization</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>50</td></tr>
<tr><td>Workshops</td><td>20</td></tr>
<tr><td>Written assignments</td><td>20</td></tr>
<tr><td>Total</td><td>90</td></tr>
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Student Assessment	The theory of the module is evaluated with ✓ written final exam (70%): includes questionnaires that cover all the taught lectures materials related to multiple choice questions, correct-wrong questions, filling in small sentences and developing a case study assessment text ✓ Teamwork presentation (30%)

(5) SUGGESTED READING

- *Suggested Reading:*

- *American College of Sports Medicine. ACSM's Introduction to Exercise Science. 1st Edition. USA: Lippincott Williams & Wilkins, 2011.*
- *American College of Sports Medicine. ACSM's exercise management for persons with chronic diseases and disabilities. 3rd Edition. Champagne, IL: Human Kinetics, 2009.*
- *American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. Baltimore: Lippincott Williams & Wilkins, 2006.*
- *Astrand PO, Rodahl K, Dahl HA, et al. Textbook of work physiology. Physiological basis of Exercise. Champagne, IL: Human Kinetics, 4th Edition, 2003.*
- *Balch A. Phyllis. Prescription for Nutritional Healing. 5th Edition. AVERY, USA, 2010.*
- *Ehrman JK, Gordon P, Paul SV, Steven J. Keteyian. Clinical Exercise Physiology. 3rd Edition. IL: Human Kinetics, 2013.*
- *Mcardle WD, Katch FI, Katch VL. Exercise physiology: energy, nutrition, and human performance. 7th Edition. Lippincott Williams & Wilkins, 2009.*
- *Melvin WH. Nutrition for fitness and sport. 4th Edition. Chicago: William C Brown Pub, 1995.*
- *Powers S, Howley E. Exercise Physiology: Theory and Application to Fitness and Performance. 8th Edition. USA: McGraw-Hill Humanities, 2011.*
- *Raven P, Wasserman D, Squires W, Murray T. Φυσιολογία της άσκησης. Μια ολιστική προσέγγιση. Αθήνα. Ιατρικές Εκδόσεις Λαγός Δημήτριος, 2016.*
- *Αστέριος Δεληγιάννης. Ιατρική της άθλησης. Universtiy Studio Press. Third edition, 2016.*
- *Powers KS, Howley TE. Φυσιολογία της άσκησης. Θεωρία και εφαρμογές ευρωστίας και απόδοσης. Broken Hill, 2018.*

- *Related Journals:*

- *Nutrition*
- *Nutrition Research*
- *Nutrition Research Reviews*
- *Obesity*
- *Nutritional Neuroscience*
- *Nutrition Metabolism and Cardiovascular Diseases*

8th SEMESTER

s/n	MANDATORY			LECTURE		WORKSHOP		TOTAL		SEMESTER WORKLOAD	ECTS
	MODULES			HOURS	WORKLOAD	HOURS	WORKLOAD	HOURS	WORKLOAD		
	MANDATORY MODULES	CATEGORY	CODE								
1	CLINICAL PLACEMENT IN PHYSIOTHERAPY	SM	П1-8010			40+	300	40+	300	300	10
2	BASIC PRINCIPLES OF PSYCHOPATHOLOGY	GBM	П1-8020	3	150			3	150	150	5
3	FIRST AIDS	GBM	П1-8030	3	150			3	150	150	5
	ELECTIVE MODULES										
4	DISSERTASION	EM	П1-8А10	4	300			4	300	300	10
	COMPUTING IN HEALTH SCIENCES + PRINCIPLES OF MANAGEMENT IN HEALTH SCIENCES	EM EM	П1-8В10 + П1-8Г10	2 + 2	150 + 150			2 + 2	150 + 150	150 + 150	5 + 5
TOTAL				**10**	**600**	**0**	**300**	**10**	**900**	**900**	**30**

Module Outline of Clinical placement in Physiotherapy

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-8010	**Semester**	8th
Module Title	Clinical placement in Physiotherapy		
Independent Teaching Activities		**Weekly Teaching Hours**	**ECTS**
Clinical Training		40	10
ΤΥΠΟΣ ΜΑΘΗΜΑΤΟΣ	Specialty Module		
ΠΡΟΑΠΑΙΤΟΥΜΕΝΑ ΜΑΘΗΜΑΤΑ:	All Specialty Modules		
ΓΛΩΣΣΑ ΔΙΔΑΣΚΑΛΙΑΣ και ΕΞΕΤΑΣΕΩΝ:	Greek		
ΤΟ ΜΑΘΗΜΑ ΠΡΟΣΦΕΡΕΤΑΙ ΣΕ ΦΟΙΤΗΤΕΣ ERASMUS	Yes (English), undertaking an essay		
ΗΛΕΚΤΡΟΝΙΚΗ ΣΕΛΙΔΑ ΜΑΘΗΜΑΤΟΣ (URL)			

(2) LEARNING OUTCOMES

Learning Outcomes
The module refers to the completion of the clinical education of students in the science of physiotherapy Upon successful completion of the course, students will be able to: • Understand the management of musculoskeletal problems • Understand the treatment of neurological problems • Understand the treatment of respiratory problems

• Understand the management of cardiovascular problems

• Develop basic skills in designing and organizing treatment programs

- Develop the ability to interpret the results of the evaluation, and decide on the selection and implementation of the most appropriate physiotherapy intervention in rehabilitation based on clinical reasoning and research documentation
- Acquire the skills in the application of physiotherapy methods and techniques and in other cognitive fields where this is possible, such as oncology, obstetrics, geriatrics, sports medicine, etc.
- Develop the perception of respect for the individuality of each patient as well as the importance of his active participation
- Develop the ability to manage and communicate well with patients and other health scientists

General Abilities

- Analysis and synthesis of data and information
- Decision making
- Design and management of physiotherapy interventions

(3) MODULE CONTENT

• Clinical applications of the main and most frequent nosological entities that need physiotherapy intervention

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	large Nursing, public and private organizations that ensure the cyclical education of students in the basic cognitive fields of Physiotherapy, such as Musculoskeletal, Neurological, Respiratory and Cardiovascular
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Communication with students (e-class)
TEACHING ORGANIZATION	

Activity	*Semester Load*
Educational visits	25
Clinical Training	200
Individual project	75

	Total	***300***	
STUDENT ASSESSMENT	The course is evaluated by the clinical placement committee based on: 1. the recording by the student of the educational clinic of the project (30%) 2. the written evaluation of the student by the person in charge of the clinical placement host institution (30%) 3. the writing of a pilot clinical or case study (40%)		

(5) SUGGESTED READING

Suggested Reading: *The proposed Bibliography of the specialty courses of the Department of Physiotherapy PADA*

Module Outline of 'Basic Principles of Psychopathology'

(1) GENERAL

Faculty	Faculty of Health & Caring Sciences		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-8020	**Semester**	8th
Module Title	Basic Principles of Psychopathology		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Theory (Lectures)	3	**5**

Module Type	General Core Module
Pre-Required Modules	
Teaching and Examination Language	Greek
Suitable for ERASMUS students	Yes (English), undertaking an essay
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
After completing the module, students: • Will have acquired basic knowledge of clinical psychopathology-symptomatology. • Will be able to recognize a psychiatric disorder. • Will be able to develop a clinical and differential diagnostic rationale on a specific clinical symptomatology. • Will have acquired updated and evidence-based knowledge of the most important and most common psychiatric diseases regarding epidemiology, etiology, clinical picture, diagnosis and therapy. • Will have acquired basic knowledge of contemporary diagnostic methods in Psychiatry. • Will have acquired basic knowledge of contemporary therapeutic methods in Psychiatry. After completing the module, students will be able to recognize the mental disorder and understand its nature and severity. They will be able to set the appropriate therapeutic goals and plan the therapeutic intervention according to the specific needs and characteristics of each patient. They will be able to participate in interdisciplinary working groups to holistically manage patient problems. They will have acquired general principles and communication skills with the psychiatric patients on patient safety, respect for their personality and diversity and safeguarding personal data. They will be familiar with the mechanisms of searching for new scientific knowledge, evaluating new information and applying innovative therapeutic methods.
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Group work- participation in interdisciplinary groups • Respect for diversity and multiculturalism • Demonstration of social, professional and ethical responsibility and sensibility about gender issues

(3)MODULE CONTENT

- **General Part**
  - Definition of Mental Health
  - History and evolution of Psychiatry
  - Classification and diagnostic tools
  - Psychiatric examination and psychiatric history
  - Psychological development
  - Psychological defense mechanisms
  - Psychiatry and Neurosciences: Neuroimaging (imaging, functional), Genetics, Neuroendocrinology, Neurophysiological Methods
- **Psychiatric Nosology**

A. Psychopathology-Psychiatric Semiology

- ✓ Disorders of consciousness
- ✓ Psychomotor disturbances
- ✓ Attention deficits and orientation impairment

- ✓ Mental disorders
- ✓ Perceptual deficits
- ✓ Language and thought-impairments
- ✓ Mood disorders

B. Epidemiology, Etiology, Clinical Picture and Diagnosis of Major Psychiatric Diseases

- ✓ Anxiety disorders: specific phobias, social phobia, agoraphobia, panic disorder, generalized anxiety disorder obsessive-compulsive disorder, acute stress reaction, post-traumatic stress disorder
- ✓ Disorders resulting from interaction of physical and mental disturbances: somatoform disorders: somatization disorder, conversion disorder, hypochondriasis, dysmorphophobic disorder, somatoform pain disorder, somatic disorders manifesting with psychiatric symptoms, comorbidity of psychiatric-somatic disorders (psychosomatic illnesses), dissociative disorders, factitious disorder
- ✓ Personality disorders: paranoid, antisocial, hysterical-histrionic, obsessive-compulsive.
- ✓ Mood disorders: (major depressive episode, manic episode), bipolar disorder, major depression, dysthymia.
- ✓ Schizophrenia and related disorders: Schizophrenic spectrum and other psychotic disorders: schizophrenic disorder, persistent delusional disorder, acute and transient psychotic disorders, schizoaffective disorder.
- ✓ Alzheimer disease and other degenerative diseases of the nervous system with psychiatric semiology (Huntington chorea, dementia with Lewy body)
- ✓ Substance related and addictive disorders
- ✓ Eating-disorders
- ✓ Sleep disorders
- ✓ Sexual disorders
- ✓ Psychopathology in specific populations: pregnancy, adolescence, aging (psychogeriatrics), caregivers
- ✓ Forensic Psychiatry

C. General psychopathology of children

- ✓ Phobic and anxiety disorder of childhood
- ✓ Childhood depression
- ✓ Childhood psychosis
- ✓ Behavioural disorders
- ✓ Tic disorders
- ✓ Hyperkinetic syndrome
- ✓ Enuresis-encopresis
- ✓ Obsessive-compulsive disorder
- ✓ Mental retardation
- ✓ Pervasive developmental disorders: Autism, Asperger syndrome, Rett syndrome, other pervasive developmental disorders unspecified

D. Psychiatric Therapeutics

- ✓ Biological therapies: pharmacotherapy, electroconvulsive therapy, phototherapy, transcranial magnetic stimulation (TMS), psychosurgery
- ✓ Psychotherapies: psychoanalytic approach, behavioral approach, cognitive approach, systemic approach, family therapy, couple therapy, group therapy, supportive psychotherapy
- ✓ Psychosocial interventions

(4)TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity**	**Semester Workload**
	Lectures	
	Posting and distribution of literature	
	Interactive teaching	
	Guest speakers approved by the Physiotherapy Department	
	Information relating to scientific activity (conferences, meetings)	
	Total	150
STUDENT ASSESSMENT	Final written examination (100%) of all module content, through : ✓ Multiple choice questions ✓ True-or-false questions ✓ Gap-filling ✓ Short answer questions ✓ Open ended questions	

(5) SUGGESTED READING

- Suggested Reading:

- *Σύγχρονη ψυχιατρική. Παπαδημητρίου Γ.Ν., Λιάππας Ι.Α., Λύκουρας Λ. ΒΗΤΑ Ιατρικές Εκδόσεις, Αθήνα 2013.*
- *Σύγγραμμα ψυχιατρικής. Σολδάτος Κ, Λύκουρας Λ. ΒΗΤΑ Ιατρικές Εκδόσεις, 2006.*
- *Ψυχιατρική Caplan & Sadock's. Συγγραφείς : Kaplan, Sadock Εκδοτικός Οίκος : Ιατρικές Εκδόσεις Λίτσας, 1996.*
- *Kaplan & Sadock's.Εγχειρίδιο Κλινικής Ψυχιατρικής. Sadock BJ, Sadock VA. Επιστημονικές εκδόσεις Παρισιάνου, Αθηνα, 2004.*

Related scientific journals:

- *Ψυχιατρική. Τριμηνιαία έκδοση της Ελληνικής Ψυχιατρικής Εταιρείας*

Recommended web sites:

*emedicine.medscape.com The **eMedicine** point-of-care clinical reference features up-to-date, searchable, peer- reviewed medical articles organized in specialty-focused textbooks*

*https://www.ncbi.nlm.nih.gov/pubmed **PubMed** comprises more than 28 million citations for biomedical literature from MEDLINE, life science journals, and online books*

Module Outline Of 'First Aid'

(1) **GENERAL**

FACULTY	FACULTY OF HEALTH AND CARING PROFESSIONS		
DEPARTMENT	PHYSIOTHERAPY		
STUDY LEVEL	UNDEGRADUATE		
MODULE CODE	N2-1020	**SEMESTER**	**8th**
MODULE TITLE	FIRST AIDS		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**ECTS**
Theoretical	2	
Practical	1	
Total	3	5

MODULE TYPE	General Core Course
PRE-REQUIRED MODULES	
TEACHING AND EXAMINATION LANGUAGE	Greek
MODULE SUITABLE for ERASMUS STUDENTS	
MODULE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

First Aid is without doubt a useful subject, not only for students, but also for the general public, since emergency incidents in the streets, at work or at home that require assistance have recently been on the increase. The aim of this course is to teach the student in a scientific yet simple way how to use available means to provide care to patients or injured people in sudden life-threatening situations. The course aims is to contribute to the preservation of human life - the best reward for attending the course.

General Competences - Learning Outcomes

After completing the course the students should be able to:

- Provide first aid in specific situations (e.g. drowning, choking) if necessary.
- Provide first aid to a collapsed victim (BLS/AED).
- Treat a patient in an organised hospital unit or outpatient clinic.
- Know how to use simple objects/instruments to provide first aid.

(3) MODULE CONTENT

Introduction, aims of first aid, first steps, assessment of the patient, examination and removal of clothes.

- Injury due to mechanical causes, abrasion, contusion, trauma, fracture, dislocation, sprain, cranium fracture, facial fracture, spinal column fracture, extremities fracture, road accident injury, beating, biting.
- Haemorrhage. Types of haemorrhage, clinical presentation, first aid. Haemorrhage from various organs, abnormal haemorrhage (rhinorrhagia, otorrhagia, gastrorrhagia, haemoptysis, varicose/haemorrhoids). Haemostasis, first aid.
- Foreign bodies. Foreign body in the skin (spiculae, hooks), the eye, the nose, the ear, swallowing a foreign body.
- Injury due to natural causes. Heat (burn, heatstroke), cold (frostbite, perniosis), sun, sunstroke, electricity (electrocution, lightning strike), irradiation, drowning, choking, crash syndrome.
- Burns (types, classification, clinical presentation, first aid).
- Abnormal signs that necessitate first aid. Pulse, pain (headache, toothache, earache, abdominal pain, fever, diarrhoea, vomiting, fainting, loss of consciousness, shock, coma, stroke, epilepsy, spasms, allergic reactions, bronchial asthma exacerbation, heart attack, angina).
- Introduction to artificial breathing and cardiopulmonary resuscitation (CPR). Basic life support (BLS) for adults. Position for resuscitation.
- Basic life support for children and infants.
- Use of automated external defibrillator in conjunction with basic life support in adults, children and infants (AED & BLS).
- Bandages, types and varieties. Triangular bandages, head bandages, bandages for the upper extremity, the chest, the hand and foot, the mandible, the knee and elbow. Cylindrical bandages: wrist and upper extremity. Figure-eight bandaging of the elbow, the upper extremity, the fingers and the foot. Bandaging the head and the eye. Reticular bandages. Splints.

- Carrying a patient. Stretchers, deploying a stretcher, placing a patient on the stretcher, other types of stretchers. Carrying the patient or injured person, carrying on a stretcher, with the hands, on the shoulders, transfer to vehicle.
- Poisoning and antidotes, signs and symptoms of poisoning, first aid after poisoning, removing and neutralising the poison.
- Injections. Oxygen and its use. Rationale of indicative risk signs, protection, and rescue. Chemicals and food additives. Contents of a First Aid kit.

(4) TEACHING AND LEARNING METHODS – ASSESSMENT

DELIVERY	Physical presence	
USE OF INFORMATION and COMMUNICATIONS TECHNOLOGY (ICT)	Open e-class platform	
TEACHING ORGANIZATION	**Activity a**	**Semester workload**
	Lectures	100
	Practice	50
	Course Total	150
STUDENT ASSESSMENT	Final written examination (70%). Practical: Continuous assessment of the students in practical exercises (30%).	

(5) SUGGESTED READING

- *Μπαλτόπουλος Γ. Πρώτες βοήθειες. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης,2001.*
- *Πετρίδης Α, Ευτυχίδου ΕΠ, Τσόχας Κ. Πρώτες Βοήθειες. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης, 2012.*
- *Πρώτες Βοήθειες Βρετανικού Ερυθρού Σταυρού. Αθήνα: Ιατρικές Εκδόσεις Λίτσας, 2010.*
- *Jones & Bartlett Learning. Emergency Care and transportation of the sick and injured. NY: American Academy of Orthopaedic Surgery, 2010.*
- *Schua S. Εγχειρίδιο επειγόντων περιστατικών. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2006.*
- *Επείγουσα ιατρική με έγχρωμες εικόνες, Knoop Kevin J.,Lawrence Stack B.,Storrow Alan B., Πασχαλίδης –Broken Hill, Αθήνα 2008*
- *AAOS (American Academy of Orthopaedic Surgeons:Επείγουσα Ιατρική Broken Hill-Πασχαλίδης 2014*
- *Σεραφείμ Νανας: Πρώτες Βοήθειες-Προνοσοκομειακή Ιατρική-Καρδιοπνευμονική Αναζωογόννηση Εκδόσεις Ι.Παρισιάνος 2013*

Module Outline of 'Dissertation'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-8Α10	**Semester**	**8th**
Module Title	Dissertation		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Total	4	10

Module Type	Elective
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
This Course completes students' education in regards to the design and completion of scientific research in Physiotherapy.
Upon successful completion of the course, the student will be able to: • Understand the subject area on which his / her work will be based • To develop the ability to search the literature in a broad context initially and in a more specific context later, in order to have the knowledge that will enable him to fully understand the subject and to create those research questions that interest him. • Develop the key skills in designing and organizing a scientific study • Develop the ability to interpret the results of the literature and to classify them according to their relevance and content • Develop the ability to organize the design of a study and apply it • Develop the ability to write the results of an observation or experimental study and to transfer them scientifically in writing • Develop the ability to interpret the results of his studies and to describe them appropriately in a scientific way. • Develop the concept of respect for the principles of sound scientific research and study and be able to apply them • Develop the ability to manage and communicate with patients and other health scientists in the case of experimental studies or related research requirements
General Competences
• Search, analyze and synthesize data and information, using the necessary technologies • Independent work • Teamwork • Working in an interdisciplinary environment • Production of new research ideas • Promoting free, creative and inductive thinking • Project planning and management

(3) MODULE CONTENT

- As defined in the relevant dissertation guide

(4) TEACHING AND LEARNING METHDOS - ASSESSMENT

Delivery	Face to Face and autonomous work and / or teamwork depending on the subject of the study
Use of Information and Communication Technology (ICT)	
Teaching Organization	**Activity** / **Semester Workload** Dissertation Writing: 300 Total: 300
Student Assessment	• The module is evaluated by the Graduate Dissertation Committee based on the rules set in the dissertation guide (100%)

(5) SUGGESTED READING

- *Suggested Reading :*
  - *Barbara Gadtel. How to Write and Publish a Scientific Paper, 8th Edition, 8th ed. 2017*
  - *Thomas A. Lang. How to Write, Publish, and Present in the Health Sciences: A Guide for Physicians and Laboratory Researchers, 1st ed., 2018 02.*

Module Outline of 'Computing in Health Sciences'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-8B10	Semester	**8th**
Module Title	Computing in Health Sciences		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	1	
Workshop	1	
Total	2	5

Module Type	Elective
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	Yes (English)
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The purpose of the course is to introduce students to Information Technology and Technology in Health Sciences, their application in the field of health and in particular in Physiotherapy. In this context, basic concepts of the network and the Internet are presented as well as online bibliographic databases that are widely used to retrieve scientific medical knowledge.
Reference is made to health information systems, coding standards and the exchange of medical information on these systems. The course will teach writing of scientific papers, oral presentations of scientific works as well as study and critique of scientific texts based on international data. Students who have successfully completed the course will: • Have acquired knowledge of Computer Science and Technology in Health Sciences • Be able to identify modern technology and study systems • Be aware of the information systems used by health care providers. • Be able to understand, select and then apply the methods of writing and presenting • Be able to collect, interpret and synthesize evidence-based research results through clinical reasoning • Be able to identify short-term and long-term goals in relation to international directives • Have acquired the necessary skills to adequately implement specific technology and bibliographic review systems
General Competences
• Analysis and synthesis of data and information •Decision making • Independent work •Teamwork • Design and management of information through Information Technology and Health Sciences

(3) MODULE CONTENT

- Introduction to Computing and Technology (Central Unit, Utilities, I / O Devices, Software, Data, Operating Systems, Software Packages),
- Basic concepts of networks and the Internet (email, web browsing)
- Learning to write and present scientific papers
- Spreadsheet data management,
- Nature and management of medical information, Medical information handling
- Codification of medical terms and systems for recording medical information,
- Online and personal health records, data organization standards, privacy and information security of citizens
- Health Information Systems,
- Physiotherapy Information Systems,
- Relational databases, medical data organization,

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>Delivery</td><td>Face to Face</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Open e-class platform</td></tr>
<tr><td>Teaching Organization
Delivery
Use of Information and Communication Technology (ICT)</td><td>
<table>
<tr><th>Δραστηριότητα</th><th>Φόρτος Εργασίας Εξαμήνου</th></tr>
<tr><td>Lectures</td><td>30</td></tr>
<tr><td>Workshops</td><td>20</td></tr>
<tr><td>Written assignments</td><td>50</td></tr>
<tr><td>Independent Learning</td><td>50</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total</td><td>150</td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Teaching Organization</td><td>The theory of the course is evaluated with

✓ Written final examination (70%) which includes questionnaires covering all the course material related to multiple choice, right-to-wrong questions, filling in the blanks and essay-type questions
✓ Teamwork presentation (30%)</td></tr>
</table>

(5) SUGGESTED READING

Suggested Reading:

- *Καρανικόλας Ν. Πληροφορική και Επαγγέλματα Υγείας. Αθήνα: Εκδόσεις Νέων Τεχνολογιών, 2010.*
- *Τόκης Ιωάννης και Τόκη Ευγενία, Πληροφορική υγείας, 1η έκδοση, 2006, Εκδόσεις Τζιόλα, ISBN: 960-418-107-6*
- *Μπότσης Ταξιάρχης και Χαλκιώτης Στέλιος, Πληροφορική υγείας, 1η έκδοση, 2005, Εκδόσεις Δίαυλος, ISBN: 978- 960-531-183-4*
- *Βλαχόπουλος Γ, Κλεπετσάνης Π. Εφαρμογές Πληροφορικής στις Επιστήμες Υγείας. Πάτρα: Εκδόσεις Αλγόριθμος, 2012.*
- *Κουμπούρος Ι. Τεχνολογίες Πληροφοριών και Επικοινωνίας & Κοινωνία. Αθήνα: Εκδόσεις Νέων Τεχνολογιών, 2012.*
- *Akay M, Marsh A. Information Technologies in Medicine. NY: Wiley-IEEE Press, 2013.*
- *Braunstein M. Health Informatics in the Cloud NY: Springer, 2012.*
- *Donnelly WJ. Patient-centered medical care requires a patient-centered medical record. NY: Academic Medicine, Lippincott Williams & Wilkins, 2006.*
- *Venot A, Burgun A, Quantin C (eds). Medical Informatics, e-Health, Fundamentals and Applications. NY: Springer, 2014.*
- *Hoyt RE, Bailey N, Yoshihashi A (eds). Health Informatics: Practical Guide For Healthcare And Information Technology Professionals. 5th ed., Raleigh: Lulu, 2012.*
- *Erl T, Puttini R, Mahmood Z. Cloud Computing: Concepts, Technology & Architecture. Westford: The Prentice Hall Service Technology Series, 2013.*
- *Fong B, Fong A, Li C.Telemedicine Technologies: Information Technologies in Medicine and Telehealth. NY: John Wiley & Sons Ltd, 2010.*
- *Tripathi M, Delano D, Lund B, Rudolph L. Engaging patients for health information exchange. Bethesda: Health AffAirs, 2009.*
- *Thomas RJ, Nelson KJ. Research methods in Physical Activity. 2nd Edition. Human Kinetics, USA, 1990.*

- *Related Journals:*

    - *Research Quarterly for Exercise and Sports*
    - *Research technology Management*
    - *Telemedicine Journal and E-Health*
    - *Telecommunication Policy*
    - *Telecommunication Systems*

Module Outline of 'Principles of Management in Health Sciences'

(1) GENERAL

Faculty	Faculty of Health & Caring Professions		
Department	Physiotherapy		
Study Level	Undergraduate		
Module Code	Π1-8Γ10	Semester	**8th**
Module Title	Principles of Management in Health Sciences		

Independent Teaching Activities	**Weekly Teaching Hours**	**ECTS**
Lectures	1	
Workshops	1	
Total	2	5

Module Type	Elective
Pre-Required Modules:	
Teaching and Examination Language:	Greek
Suitable for ERASMUS students:	
Module Website (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes
The course is an introduction to the education of students on issues related to the written and "unwritten" laws-principles under which small and large businesses operate and run in Greece. Students are taught the role and contribution of administrative science in the field of health and the relationship of the health scientist with other professionals in his work environment. The specialized modules that make up the syllabus of the course mainly focus on:
• understanding the historical path of the concept of Management and Entrepreneurship as humanity evolves, • understanding the basic principles of Management • the recognition of basic Individual or Small Business Management Models in general • Recognition of key Health Management Models • understanding the basic principles of a Vertical and Horizontal Structure of a Health Services Human Resources Agency • analysis of key modern considerations in Entrepreneurship, the performance and feasibility of Public and Private Health Services • Understanding the basic principles of financial management • Understanding the basic Principles of Advertising and Promotion Ethics in Health and Applications in Physiotherapy • Entrepreneurship in Physiotherapy – legislation In this way students will be able to perceive the value of Management Science in the proper, efficient and productive quality development in the field of Health. It will enable them to understand the importance of the proper functioning of a Health service both in terms of service provision and employee decision-making. Of particular importance is the exploration of the modern perception and the established position of the physiotherapist in the multifaceted health service centers, primary health care and participation in interdisciplinary working groups. Upon successful completion of the course, the student will be able to: • Understand the key concepts of Management • Knows the importance of this science in practicing the profession • Acquire the skills to participate in business projects • Has the ability to analyze simple economic concepts related to health • Has the ability to work with his / her peers to analyze and present complex issues related to interdisciplinary cooperation
General Competences
• Analysis and synthesis of data and information • Decision making • Independent work • Teamwork

(3) MODULE CONTENT

- A historical overview of administrative science in the field of health
- Basic routing models
- Analysis of vertical and horizontal structure of organisms
- Factors affecting management
- Health Applications - Health Systems
- Three levels of health care - The role of physiotherapy
- Individual and small health service businesses
- Large-scale public and private business model organizations
- Basics of Financial Management - Accounting Models
- Satisfaction of health workers
- Satisfaction of health service users
- Quality in the health professions
- Interdisciplinary cooperation - Protocols
- Legal Workplaces for Physiotherapists

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>Delivery</td><td>Face to Face</td></tr>
<tr><td>Use of Information and Communication Technology (ICT)</td><td>Communication with students via e-class</td></tr>
<tr><td>Teaching Organization</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>110</td></tr>
<tr><td>Workshops</td><td>20</td></tr>
<tr><td>Teamwork in bioethics analysis and legislation study</td><td>10</td></tr>
<tr><td>Small individual comprehension tasks</td><td>10</td></tr>
<tr><td>Total</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>Delivery</td><td>The theory of the course is evaluated with
✓ Written final examination (70%) which includes questionnaires covering all the course material related to multiple choice, right-to-wrong questions, filling in the blanks and essay-type questions
✓ Teamwork presentation (30%)</td></tr>
</table>

(5) SUGGESTED READING

- *Suggested Reading:*

- *Νικόλαος Μ. Πολύζος. Χρηματοοικονομική διοίκηση μονάδων υγείας. Αθήνα: Εκδόσεις Διόνικος 2008*
- *Νικόλαος Μ. Πολύζος. Διοίκηση και οργάνωση υπηρεσιών υγέας. Αθήνα: Εκδόσεις Κριτική 2014*
- *Σωτήρης Σούλης. Εφαρμοσμένη κοινωνική πολιτική. Σχεδιασμός υπηρεσιών υγείας και κοινωνικής προστασίας. Αθήνα: Εκδόσεις Παπαζήσης 2015*