COURSE OUTLINE FORCE MEASUREMENTS AND RECORDINGS

1. GENERAL

SCHOOL	PHYSICAL EDUCATION, SPORT SCIENCE AND OCCUPATIONAL THERAPY		
DEPARTMENT	PHYSICAL EDUCATION AND SPORT SCIENCE		
LEVEL OF STUDIES	ISCED level 6 – Bachelor's or equivalent level		
COURSE CODE	C043	**SEMESTER**	5^{th},6^{th}
COURSE TITLE	FORCE MEASUREMENTS AND RECORDINGS		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	2	3

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	Skill Development
PREREQUISITES:	None
TEACHING & EXAMINATION LANGUAGE:	Hellenic (Greek) English for Erasmus+ students
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

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

- *understand the mechanisms of internal (muscle) and external (resistance) force development during the performance of athletic and everyday movements*
- *know the procedures for measuring and recording these forces with laboratory systems*
- *apply similar measurement procedures with portable instruments in training areas*
- *assess the level of all forms of force (peak force, explosive force, power, reactive force, force endurance) in competitive and recreational athletes*

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

The general skills that are supported involve:

- *Search, analysis and synthesis of data and information, using appropriate ICT*

- *Decision making*
- *Autonomous work*
- *Teamwork*
- *Working in an international environment*
- *Working in an interdisciplinary environment*
- *Production of new research ideas*
- *Project design and management*
- *Respect for the natural environment*
- *Promoting free, creative and inductive reasoning*

3. COURSE CONTENT

1. *Introduction to force measurement and recording*
2. *Internal and external forces in sports and everyday movements*
3. *Principles of dynamometry & dynamography*
4. *Determination of force curve in single-joint movements*
5. *Determination of force curve in multi-joint movements*
6. *Determination of power curve in single-joint movements*
7. *Determination of power curve in multi-joint movements*
8. *Measurement of rate of force development in single-joint and multi-joint movements*
9. *Dynamography of jumping movements*
10. *Measurement of lower limb reactive force*
11. *Measurement of force endurance*
12. *Measurement of power endurance*
13. *Project presentation - summary of conclusions*

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	– Face to face – Theoretical lectures – Laboratory courses – Distance learning
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of ICT in teaching and communication with students: – digital slides – videos – MsTeams/ e-class, webmail
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	

Activity	***Workload/semester***
Lectures	26
Lab exercises	20
Study and analysis of the literature	26
Examinations	3
Total	**75**

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,Clinical examination of a patient,Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	• Interim evaluations (80%) • Written exams including: multiple choice tests, short answer questions and development questions designed to solve problems (20%) The assessment languages are Greek and English for Erasmus students

5. SUGGESTED BIBLIOGRAPHY

KELLIS E. (2008) NEURO-MECHANICAL PRINCIPLES OF MUSCLE STRENGTH ASSESSMENT. ATHENS: MARIA PARIKOU & CO.

TSAKLIS P. (2019) ISOKINETIC FORCE MEASUREMENT AND EXERCISE. ATHENS: UNIVERSITY STUDIO PRESS

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Nikolaos Aggelousis
Contact details:	nagelous@phyed.duth.gr
Supervisors:	Yes
Evaluation methods:	Written or oral examination with distance learning methods,via eClass. Identification and monitoring of examinees through Microsoft Teams
Implementation Instructions:	The examination in the course will be done in randomly created groups of users (examinees). The compositions of the user groups will be announced in time. The total examination duration of each group will be 1 hour. In the first twenty minutes of each examination period, the examinees will be identified through the MS Teams app. For this purpose, there must be a camera, microphone and headphones connected to their terminal device (PC or smartphone). The relevant link will be sent via eClass, exclusively to the institutional accounts of those who have registered for the course and have accepted the terms of distance examination. For identification, students will display their student ID on camera when requested. The main examination will be carried out through the "Exercises" application of eClass. In particular, at the beginning of the second twenty minutes of each examination period, an exercise entitled "Examination - Group X (where X = 1 to n)" will be activated in the eClass, which will include 20 questions. The time limit for answering the 20 questions will be 30 minutes. During this period, all questions should be answered and finalized. Each of the questions will be graded with 0.5 points.

	Students should log in to the eClass platform through their institutional account. Also during the exam the camera and microphone of the examinees have to be continuously activated and the MS Teams application should be open.