COURSE OUTLINE

1. GENERAL

SCHOOL	**PHYSICAL EDUCATION & SPORT SCIENCES**		
DEPARTMENT	**PHYSICAL EDUCATION & SPORT SCIENCES**		
LEVEL OF STUDIES	PGP – Level 7		
COURSE CODE	K203	**SEMESTER**	B’
COURSE TITLE	Applications of Technology in Health		
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**
		3	7,5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.			
COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	Scientific Area		
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS:	NO		
COURSE URL:	https://eclass.duth.gr/courses/PHYED4106/		

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.

The purpose of the course is to familiarize students with Information and Communication Technologies (ICT) in the healthcare sector so that they can use them as: a) a means of simulation and exploration, b) a medium for collecting and processing data, c) a platform for demonstration and interaction, and d) a tool for prevention, rehabilitation, and maximizing performance in healthcare.

After completing this course, students will be able to:

- Understand the basic concepts of information and communication technology applications, specifically in the field of health.
- Utilize educational technological applications in the health sector.
- Harness information and communication technology applications and new learning environments in educational programs promoting health.
- Evaluate the use and implementation of information and communication technologies in the healthcare domain.

General Skills

Name the desirable general skills upon successful completion of the module

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

Production of new research ideas
The general abilities of the students that are strengthened are: - Search, analysis and synthesis of data and information, ICT Use - Decision making - Autonomous work - Teamwork - Work in an interdisciplinary environment - Generating new research ideas - Project design and management - Critical thinking - Promoting free, creative and inductive reasoning Project planning and management

3. COURSE CONTENT

Lecture 1: Information in the Healthcare Sector
Lecture 2: Introduction to Digital Ethics: An introductory session focusing on 'what is digital ethics' and 'why ethics.'
Lecture 3: Data Governance: A description of the data governance framework in the health sector
Lecture 4: Database Applications in Health Informatics I
Lecture 5: Database Applications in Health Informatics II
Lecture 6: Health Informatics and Education (introduction, simulation and training, virtual reality and education, distance learning)
Lecture 7: Practical Issues and Impact Study of Health Applications in Data Protection and Trust
Lecture 8: Integration and Utilization of Interactive Video Games in Health
Lecture 9: Intelligent Applications in Health
Lecture 10: Digital Trends and Developments in the Healthcare Sector – Machine Learning
Lecture 11: Basic Principles of Machine Learning
Lecture 12: Machine Learning Workshop
Lecture 13: Practical Issues in Sports Applications - The problem of alignment.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	- Face-to-face lectures - Laboratory sessions - Lectures with the option of using distance learning tools (synchronous lectures) - Lectures with the option of using distance learning tools (asynchronous lectures)
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	The use of Information and Communication Technologies (ICT) in teaching and communicating with students includes: - Digital lecture slides - Assignments through the e-class platform - Utilization of MsTeams/e-class and webmail for communication - Deployment of Microsoft Access for database management - Use of Python Spyder IDE for machine learning applications
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.*	

Activity	*Workload/semester*
Lectures	39
Bibliographic research & analysis	60
Individual work	45
Teamwork	25,5
Essay Presentation	15

The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.	Final Exams: 3 **187,5**
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*	Student assessment includes: **Individual Assignment:** Design and implementation of a medical database in Microsoft Access (tables, relationships, forms, queries, reports). **Group Assignment:** Presentation of a research proposal on digital interactive sports games (exergames) with contemporary literature in a PowerPoint file: 15%. **Final Exams:** 60%.

5. SUGGESTED BIBLIOGRAPHY

1. Botsis, T., & Chalkiotis, S. (2005). Health Informatics. Athens: Diaulos [In Greek].
2. Gkortzis, E. (2007). Medical Informatics and Telemedicine Services. Athens: Giourdas [In Greek].
3. Papastergiou, M., & Thiraios, E. (2010). Information and Communication Technologies in Health Education: Theoretical Framework, Empirical Findings, and Research Perspectives. Archives of Hellenic Medicine, 27(2), 239-258.
4. Vernadakis, N., Derri, V., Tsitskari, E., & Antoniou, P. (2014). The effect of Xbox Kinect intervention on balance ability for previously injured young competitive male athletes: a preliminary study. Physical Therapy in Sport, 15, 148-155.
5. Tzanetakos, N., Papastergiou, M., Vernadakis, N., Antoniou, P. (2017). Utilizing physically interactive video games for the balance training of adolescents with deafness within a physical education course. Journal of Physical Education and Sport, 17(2), 614-623.
6. Vernadakis, N., Papastergiou, M., Giannousi, M., Panagiotis, A. (2018). The effect of an exergame-based intervention on balance ability in deaf adolescents. Sport Science, 1, 36-41.
7. Lecture Files for the course: Applications of Technology in Health (2019) - Postgraduate Program 'Clinical Exercise & Technology Applications in Health'.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Nikolaos Vernadakis, Professor
Contact details:	nvernada@phyed.duth.gr
Supervisors: (1)	NO
Evaluation methods: (2)	Written examination using distance learning methods through eClass – Identification and supervision of examinees through Microsoft Teams.
Implementation Instructions: (3)	The examination for the course will take place in subgroups of users on e-class, depending on the number of participants in the course, on the day of the exam according to the examination schedule announced by the Secretariat. The examination will be conducted via Teams. The link will be sent to the students through e-class exclusively to those who have registered for the course and are familiar with the terms of distance education. Students must log in to the examination room using their institutional accounts; otherwise, they will not be able to participate. They are also required to participate in the exam with an open camera during the entire duration. Before the start of the exam, students will show their ID to the camera for identification. Each student must answer laboratory exercises, multiple-choice questions, free-text questions, short-answer questions, and critical-thinking questions. Each question is graded from 0.5 to 10.0 points, depending on the category of the question (maximum of 100 points).

(1) Please write YES or NO

(2) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.