INSTITUTION	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS					
SCHOOL	SCHOOL OF SCIENCE					
DEPARTMENT	INFORMATICS AND TELECOMMUNICATIONS					
COURSE LEVEL	UNDERGRADUATE					
COURSE TITLE	**Artificial Intelligence II**					
COURSE CODE	**C02**		**Semester**	**7**	**ECTS**	**6**
TEACHING HOURS per week	**THEORY**	**3**	**SEMINAR.**	**1**	**LABORATORY**	
URL	https://eclass.uoa.gr/courses/DI517/					

COURSE CONTENT
The course concentrates on the study of deep learning techniques and their use in natural language processing. Topics: introduction to machine learning, regression, perceptron, neural networks, backpropagation, word vectors, word2vec and related models, dependency parsing, language modeling and RNNs, vanishing gradients and fancy RNNs, machine translation, seq2seq and attention, question answering, convolutional networks for NLP, contextual word embeddings, transformers, BERT, GPT-3 and related models, natural language generation, question answering for knowledge graphs, coreference resolution, dialogue systems and chatbots. The programming exercises of the course are done using Python/PyTorch.

STUDENT LEARNING OBJECTIVES
Teaching-Learning Goals-Expected Learning Outcomes Upon successful completion of the course the student will be able to: • Solve natural language processing problems using deep learning techniques. • Apply deep learning techniques to practical problems. • Carry out projects using modern deep learning programming frameworks such as PyTorch.

TEACHING AND LEARNING METHODS – ASSESSMENT		
TEACHING METHOD	In Class (Face to Face)	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Learning process supported by the e-class platform and piazza. Email communication Live transmission of lectures Ability to track recorded lectures Utilization of programming language Python.	
TEACHING ORGANIZATION *Describe in detail the way and methods of teaching: Enhanced Lectures,*	**Activity**	***Student Workload*** *(hours)*

Online Lectures,
Seminars,
Tutorial,
Laboratory,
Laboratory Exercise,
Study & analysis of literature,
Practice (Positioning),
Interactive teaching,
Developing a project,
Individual / group work
Telework (reference to tools) etc.

Details of the student's study hours for each learning activity and hours of non-guided study are shown to ensure that the total workload at the semester corresponds to the ECTS

Lectures	39
Tutorial	13
Homework	98
Total Course (25 hours of workload per unit of credit)	***150***

ASSESSMENT OF STUDENTS

Description of the assessment process

Assessment Methods, Formative or Concluding, Multiple Choice Test, Quick Response Questions, Test Development Questions, Problem Solving, Written Work, Report / Report, Oral Examination, Public Presentation, Laboratory Work, Other / Other

Fully defined evaluation criteria are mentioned and if and where they are accessible to students.

4 assignments with theoretical and programming questions. 1 written final exam.

Assessment methods	***Number***	***Percentage***
Written examination	1	20%
Homework	4	80%

LITERATURE AND STUDY MATERIALS / READING LIST

Harvey Maylor, Project Management, Kleidarithmos Publishing, 3rd edition, 2005