INSTITUTION	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS						
SCHOOL	SCHOOL OF SCIENCE						
DEPARTMENT	INFORMATICS AND TELECOMMUNICATIONS						
COURSE LEVEL	UNDERGRADUATE						
COURSE TITLE	**Communication Networks I**						
COURSE CODE	**K16**		**Semester**	**4**	**ECTS**	**6**	
TEACHING HOURS per week	**THEORY**	**3**	**SEMINAR.**	**1**	**LABORATORY**		
COURSE TYPE	**Compulsory Courses (YM)**						

K	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**

URL	https://eclass.uoa.gr/courses/DI410/
EXPECTED PRIOR KNOWLEDGE/ PREREQUISITES AND PREPARATION:	Recommended K13
TEACHING AND EXAMINATIONS LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO

COURSE CONTENT
The course covers the following topics: Basic concepts and design principles of communication networks. Structure of the Internet, history of the Internet. Application layer (HTTP, FTP, e-mail, DNS, P2P, Content Delivery Networks). Functionality of transport layer (TCP, UDP, flow control, congestion control). Network layer (routers, addressing, IP protocol, routing algorithms and protocols). Generalized forwarding and SDN. Network management and SNMP. Link layer (error detection techniques, multiple access protocols, local area networks (Ethernet, VLANs), virtual links (MPLS)).

STUDENT LEARNING OBJECTIVES
Teaching-Learning Goals-Expected Learning Outcomes

Introduction to the Internet architecture, its primary applications as well as the functionality of the protocols used.

Upon successful completion of the course the student will be able to:

- Explain the principles of operation and the design aspects of communication networks
- Mention and compare the basic characteristics of various network technologies and applications
- Identify the different functionality of networking/switching devices
- Compare and assess the functions of the basic protocols that govern the application, transport, network and link layers
- Describe the flow control and congestion control mechanisms, as well as the different choices in routing traffic in the Internet

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 for accessing the course's digital educational content (Power Point Presentations, Recorded Videolectures, Interactive Elements, Self-Assessment Exercises, References) and announcements. Email communication Live streaming of lectures On demand access of recorded lectures
TEACHING ORGANIZATION *Describe in detail the way and methods of teaching:* *Enhanced Lectures,* *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*	

Activity	***Student Workload*** *(hours)*
Lectures	39
Exercises	13
Study	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.

Students are evaluated based on written exams.
If requested, the exam problems and their solutions are discussed with the students after the exams.

Assessment methods	*Number*	*Percentage*
Final written examination	1	100%

LITERATURE AND STUDY MATERIALS / READING LIST

Main text

- Computer Networking, J. Kurose και K. Ross, Pearson/Addison-Wesley, Greek Translation, Giourdas Publishing

Additional reading

- Computer Networks, A.Tanenbaum and D.Wetherall, Greek Translation, Klidarithmos Publishing
- Computer Networks, L.Peterson and B.Davie, Greek Translation, Klidarithmos Publishing