

INSTITUTION	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS						
SCHOOL	SCHOOL OF SCIENCE						
DEPARTMENT	INFORMATICS AND TELECOMMUNICATIONS						
COURSE LEVEL	UNDERGRADUATE						
COURSE TITLE	Mobile and Wireless Communication Systems						
COURSE CODE	ΕΠ18		Semester	7	ECTS	6	
TEACHING HOURS per week	THEORY	3	SEMINAR.		LABORATORY	1	
COURSE TYPE	Electives (ΠΜ)						
	K	E1	E2	E3	E4	E5	E6
	B					B	
URL	https://eclass.uoa.gr/courses/D74/						
EXPECTED PRIOR KNOWLEDGE/ PREREQUISITES AND PREPARATION:	K16						
TEACHING AND EXAMINATIONS LANGUAGE:	GREEK						
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO						

COURSE CONTENT
<p>The course is organized into two main modules: a) general principles of wireless and cellular systems; and b) short description of modern cellular communication systems (with emphasis on GSM, UMTS, LTE). Laboratory exercises take place in the last part of the course and include short presentations on topics related to the subjects being taught.</p>

STUDENT LEARNING OBJECTIVES
<p>Expected Learning Outcomes Upon successful completion of the course the student will be able to:</p>

- Describe and explain the principles governing wireless and mobile networks: Functional entities, their role, processes of communication between them and their evolution over the years.
- Describe and explain why wireless communication features and user mobility make it difficult to provide quality of service to wireless users and mention the most advanced protocols of wireless local area networks (IEEE 802.11), their advantages and disadvantages, and their evolution from their original form to the present day.
- Describe and explain mobility support requirements for mobile communication networks, the procedures required to meet them, and the appropriate signaling between the functional entities of the system, with emphasis on location update and handover.
- Describe and explain the initialization of communication and call origination processes on mobile communications networks, focusing on user search and signaling between calling and called user.

TEACHING AND LEARNING METHODS - ASSESSMENT													
TEACHING METHOD	In Class (Face to Face)												
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	<p>Learning process supported by the e-class platform (Announcements, Teaching Material, Exercises, Recorded Videlectures)</p> <p>Email communication</p> <p>Live streaming of lectures</p> <p>Ability to view recorded lectures (https://delos.uoa.gr/opendelos/search?dp=di&crs=816970c3).</p>												
<p>TEACHING ORGANIZATION</p> <p><i>Describe in detail the way and methods of teaching:</i> 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.</p> <p><i>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</i></p>	<p>Theory is presented with slide projection. The lectures are broadcasted live and recorded so that students can rehearse the lectures. The laboratory is organized through exercises/presentations that the students deliver through eclass at the end of the semester.</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Student Workload (hours)</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>39</td> </tr> <tr> <td>Laboratory</td> <td>13</td> </tr> <tr> <td>Preparation for the Laboratory</td> <td>25</td> </tr> <tr> <td>Independent Study</td> <td>73</td> </tr> <tr> <td>Total Course (25 hours of workload per unit of credit)</td> <td>150</td> </tr> </tbody> </table>	Activity	Student Workload (hours)	Lectures	39	Laboratory	13	Preparation for the Laboratory	25	Independent Study	73	Total Course (25 hours of workload per unit of credit)	150
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Independent Study	73												
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 assessed by written examination and submission of the laboratory exercise/presentation. The written examination covers the theoretical part. The written examination is 70% of the final grade. The laboratory exercise is 30% of the final grade. Complaints and retrains are allowed.

Assessment methods	Number	Percentage
Written examination	1	70%
Laboratory	1	30%

LITERATURE AND STUDY MATERIALS / READING LIST

- Mobile and Personal Communication Networks, 2nd Edition, M.E. Theologou, Tziolas Publishing

Additional reading

- Wireless Communications: Principles and Practice, 2nd Edition, Theodore S. Rappaport, Prentice Hall Publishing