

Course title	Code	semester	T+U	credit	ECTS
Mobile Communications		8	3+0	3	4
Prerequisite Courses	None				
Language of the Course	English				
Course Level	Undergraduate				
Type of Course	Optional				
Course Coordinator					
Instructors					
Course Assistants					
The aim of lesson	This course will cover topics in the areas of mobile systems and communications, as well as sensor systems and networking and a mix of the two. It aims to help students develop and understand the added complexity brought by the mobility and energy constraints of modern systems.				
Course Content	Wireless propagation and MAC Layer. Differences in transmission in wired and wireless medium. Introduction to MAC layer protocols of wireless and mobile systems. Cell phone architectures and communication. Introduction to mobile phones and operating systems available for mobile phones. Mobile Infrastructure communication and opportunistic network protocol. Description of common communication architectures and protocols for mobile phones and introduction to opportunistic network models. Introduction to sensor systems architecture. sensor systems challenges and applications. Sensor systems MAC layer protocols. Introduction to concepts related to duty cycle and energy conservation protocols. Sensor systems routing protocols. Communication protocols, data collection and dissemination in sensor networks. Sensor systems programming and reprogramming. Sensor reprogramming motivation and approaches for sensor network management and updating. Mobile detection and participant detection. Mobile sensor networks and the use of mobile phones as sensors				
Course Learning Outcomes	<p>Students who successfully complete this course;</p> <ol style="list-style-type: none"> 1. Will be able to describe the similarities and differences between standard distributed systems and mobile and sensor systems. 2. Will be able to explain the main tradeoffs related to energy limitations and communication needs in these systems. 3. Will be able to argue for and against different mobile and sensor systems architectures and protocols. 				
Weeks	Topics				
one	Introduction to Mobile Systems				
2	Mobile Medium Access Control Protocols and Wireless				
3	Infrastructure, Ad-hoc and Latency Tolerant Mobile Networks				
4	Sensor Systems and MAC Layer Protocols				
5	Sensor Networking Routing Protocols				
6	Sensor Networking Routing Protocols				
7	Sensor Systems Reprogramming and Mobile Sensing				
8	Cell Phone Detection				
9	Cell Phone Detection				
10	Practical Mobile Phone Programming. The code used in the lesson is here.				
11th	Topics and Networking				
12	User Notifications, Broadcast Receivers and Alerts				
13	Graphics, Touch and Multimedia				
14	Sensors, Location and Maps and Data Management				
15	Sensors, Location and Maps and Data Management, General replay				
General Competencies					

Gain knowledge to cover topics in the fields of mobile systems and communications, as well as sensor systems and networking and a mixture of the two.

resources

J. Schiller “Mobile communications” 2003 Pearson (2nd ed.). ISBN-13: 978-0201398366
 H. Karl, A. Willig, “Protocols and architectures for wireless sensor networks”. wiley. 2006, ISBN -13: 978-0470519233

Evaluation System

The dates, days and hours of the Midterm Exam, Quiz, Final Exam and Evaluations will be announced later, according to the decision of the Faculty Administrative Board.

WITH PROGRAM LEARNING OUTCOMES COURSE LEARNING OUTCOMES RELATIONSHIP TABLE											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
LO1	5	5	5	5	4	4	4	5	5	4	4
LO2	5	4	4	4	4	3	3	3	5	4	5
LO3	5	5	5	4	5	3	3	3	3	3	3
LO: Learning Outcomes OP: Program Outcomes											
Contribution Level	1 Very Low		2 Low		3 Medium		4 High		5 Very High		

Relation of Program Outcomes and Related Course

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Mobile Sensors and Usage	5	5	5	4	4	3	3	4	3	4	3

