linfo2146

2022

Mobile and Embedded Computing

5.00 credits	30.0 h + 15.0 h	Q2

Teacher(s)	Sadre Ramin ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Main themes	• Cellular networks • Internet of things and sensor networks • Mobile and embedded applications

Learning outcomes	**At the end of this learning unit, the student is able to :**
	
	Given the learning outcomes of the "Master in Computer Science and Engineering" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes:
	
	  • INFO1.1-3
	  • INFO2.4-5
	  • INFO5.2-5
	  • INFO6.1, INFO6.3
	
	Given the learning outcomes of the "Master [120] in Computer Science" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes:
	
	  • SINF1.M1
	  • SINF2.4-5
	  • SINF5.2-5
	  • SINF6.1, SINF6.3
	
	Students completing this course successfully will be able to
	
	  • Explain how in mobile cellular and sensor networks operate
	  • Describe the key problems that affect these environments and identify their impact on the mobile and embedded systems
	  • Integrate and combine the above concepts in order to solve complex mobile computing problems.

Evaluation methods	Mode of evaluation for the June session:
	
	  • Exam (50% of the final mark)
	  • Project activities in groups (40% of the final mark)
	  • Quizzes (10% of the final mark)
	
	August session: The project activities and quizzes cannot be redone for the August session and the student will keep the grades obtained for them in the June session with the weights for the final mark as indicated above.
	
	The professor may request a student to go through an additional oral exam as a complement of the exam and/or of the project activities, in cases including, but not limited to, technical issues, or suspicion of irregularities.

Teaching methods	• Lectures • Scientific readings • Practical lab sessions • Project activities

Content	The Internet of Things is everywhere. Many different kinds of applications, from logistics to Smart Homes to eHealth, rely on continuous data collection by wireless, small devices. In this course, we will program such devices and learn about the technologies that enable them to communicate with servers in the Internet over short and large distances. The focus will be on software and network protocols for mobile and embedded devices. Design of low power hardware and antenna technology are not part of this course.
	
	  • Wireless sensor networks
	  • Internet of Things
	  • Programming embedded systems with network connection
	  • Network protocols for resource-constrained devices
	  • Introduction to mobile networks

Inline resources	Moodle and/or Teams

The "1" in the left margin of the Learning outcomes row.

Other infos	Background:
	• LINFO1252 (C and computer systems) • LINGI1341 (IP networks)
Faculty or entity in charge	INFO

Background:

• LINFO1252 (C and computer systems)
• LINGI1341 (IP networks)

INFO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Electrical Engineering	ELEC2M	5		🔍
Master [120] in Computer Science and Engineering	INFO2M	5		🔍
Master [120] in Computer Science	SINF2M	5		🔍
Master [120] in Data Science Engineering	DATE2M	5		🔍
Master [120] in Data Science: Information Technology	DATI2M	5		🔍