

Wireless Networks: from Cellular to Connected Objects

Subject area: Computer Science/ICT

University:	L'X
Level:	MA1, MA2
Teaching mode:	hybrid: some students participate online, other students attend real-life
Instructor(s):	Marceau Coupechoux, Juan-Antonio Cordero Fuentes

Short description

The course is on wireless networks with a particular focus on cellular networks. We don't explain how a specific technology is working. We rather explain what are the main concepts and approaches present in all (or many) wireless technologies and we give examples from specific technologies. Moreover, we explain why technological choices have been made. Wireless networks are not only about radio access (see core networks, services, applications, etc), but this course focuses on it.

Full description

More specifically the outline of the course is as follows: Overview of Wireless Networks; Wireless Communications; Random Access; Deterministic Access Schemes; Radio Link Control; F/TDMA Cellular Access; OFDMA Cellular Access; IoT Protocols; Radio Interface of 5G New Radio; Scheduling in Wireless Networks

Learning outcomes

At the end of the course, the learner will be able to have a deep understanding of wireless networks at lower layers from a performance and protocol perspective.

General information

Contact hours per week:	4 hours
Total workload:	60 hours (in student hours for the whole course)
ECTS credits:	5
Language:	English

Course start date:	03 January 2023
Course end date:	17 March 2023
Add. info about start date:	
Weekly teaching day/time:	
Time zone:	CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)
Further information:	
Prerequisites:	basics in networks
Activities and methods:	Lectures, Exercises, + Project
Presence on campus:	no

Final examination

Form:	project oral defense, project report, written assignments at home
Date:	
Location/format:	online
Re-sit possibility:	no
Transcript available:	end of the semester and generally 8 weeks after the exam.
Add. info/requirements:	End of March 2023

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

Number of places:	6
Minimum participants:	
Internal course code:	INF567
Contact:	euroteq-mobility@polytechnique.fr

This course is part of the EuroTeQ Engineering University joint course catalogue 2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit www.euroteq.eu or get in touch with the above-mentioned point of contact.