2EL6120 – Intelligent Wireless Access & Experimentation

Instructors: Georgios Ropokis
Department: CAMPUS DE RENNES
Language of instruction: ANGLAIS
Campus: CAMPUS DE RENNES
Workload (HEE): 60
On-site hours (HPE): 35,00
Elective Category : Engineering Sciences
Advanced level : Yes

Description

The scope of the course is to present the essential knowledge necessary to understand the characteristics of wireless communications systems and standards. To this end, the course focuses on some of the several aspects of communications systems including:

1. transmission technologies used in current and future standards, including 4G and 5G
2. Multiple Access technologies used in current and future standards (starting from 2G and moving to 5G and beyond 5G),
3. the basics and characteristics of telecommunications hardware including the architecture of computing equipment used in communication and the behavior of RF chains,
4. architectures of mobile processors
5. the process of experimentation and prototyping for wireless communications systems.

The course covers all the technical essentials for students that are interested in understanding the fundamentals of wireless communications and its applications, and can serve as a first step for those interested in taking further studies in wireless communications engineering. Moreover, as the course exposes students to several aspects of wireless communications engineering, it serves as an excellent opportunity for those of them interested in pursuing a career in project/team management in the broad area of Communications Engineering. The course will help students familiarising with the most significant aspects of Wireless engineering including wireless communications standards and their characteristics, wireless hardware and prototyping. The presentation of the material will follow a standard oriented approach such as to cover students interested both in the fundamentals of Wireless Communications as well as students mostly interested in a more applied approach to Wireless Communications.