

COURSE NAME			
<b>Wireless Transceivers: Standards, Techniques and Architectures</b>			
CREDITS	6 ECTS	TYPE	Elective
SCHEDULING	2nd Term	CHARACTER	Theoretical-Practical

### CONCISE COURSE CONTENTS

- Introduction and overview of wireless communications.
- Techniques for coding and modulation.
- Multiple access techniques and communication standards.
- Architectures of transmitters and receivers.
- System planning and methodology for design of RF transceivers.

### LEARNING OBJECTIVES

The main objective of the course is to study wireless communication systems, paying special attention to those aspects relevant for the design of RF integrated circuits. This generic objective is broken down into the following specific objectives:

- Get to know the main wireless communication standards and their applications for the design of integrated circuits.
- Get to know the figures of merit and specifications characterizing the operation of a RF transceiver.
- Study and compare the various architectures of receivers and transmitters for digital radio, analyzing their operation properties, design tradeoffs, complexity and difficulty of monolithic integration.
- Learn the methodology and planning of high-level design of RF transceivers and the conveyance of specifications to the underlying circuit blocks (physical layer, PHY).
- Endow the students with the knowledge required to make use of analytic and procedural tools, from both top-down and bottom-up approaches, needed for addressing the design of any RF transceiver topology.
- Get to know high-level concepts of digital processing (MAC layer): modulation, coding, encryption...

### LEARNING ACTIVITIES

- Online theoretical-lectures classes.
- Practical classes and/or exercises: tutorials, resolution of selected problems and practical work.

### EVALUATION SYSTEM

- Assimilation of concepts: on-going evaluation supported by exercises and problems.
- Evaluation of capacities: practical cases with optional individual online presentation.
- Examinations.