

An Introduction to Wireless Technologies

Part 1



F. Ricci
2010/2011

Content

- ❑ Wireless communication standards
- ❑ Computer Networks
- ❑ Reference model for a network architecture
- ❑ Frequencies and regulations
- ❑ Wireless communication technologies
- ❑ Signals
- ❑ Bandwidth limited signals
- ❑ Signal modulation
- ❑ Data transfer rate
- ❑ Signal propagation

Most of the slides of this lecture come from **prof. Jochen Schiller's** didactical material for the book "**Mobile Communications**", **Addison Wesley, 2003.**

Analogue vs. Digital

□ **Analogue transmission of analogue data**

- The air pressure variations (analogue data) are converted (microphone) into an electrical analog signal in which either the instantaneous voltage or current is directly proportional to the instantaneous air pressure and then transmitted (e.g., traditional phone or radio)

□ **Analogue transmission of digital data**

- The electric analog signal is digitized, or converted to a digital signal, through an Analog-to-Digital converter and then modulated into analogue signals and transmitted (e.g., digital phones as GSM).