ADVANCED TECHNIQUES FOR WIRELESS POSITIONING AND LOCALIZATION

Lecturer: Chiara Garibotto, chiara.garibotto@unige.it

Duration: 20 hours

Credits: 6

Language: English

AIM & SCOPE

The course provides a detailed overview of the main wireless positioning and localization techniques available in the literature, both concerning indoor and outdoor scenarios. The topics cover the fundamental principles of positioning and localization, explaining the basic theory and key concepts related to state-of-the-art techniques. Special focus will be given on system architecture, approach and methodology, algorithms and accuracy of the considered solutions. The course will also delve into advanced wireless positioning methods and their latest applications in different frameworks, such as the Internet of Things, smart cities and smart mobility, discussing related challenges and open issues.

CONTENTS

- Introduction to wireless positioning
- Taxonomy of state-of-the-art localization approaches
- Errors in localization
- Source localization algorithms
- Elements of positioning and localization
- Advanced techniques for wireless positioning
- Examples of location-aware applications and real use-cases
- Challenges and open issues

ASSESSMENT METHOD

Oral exam. The students will be asked to deliver a presentation on related literature assigned by the lecturer, as well as address specific questions and further discussion on the proposed topic.

BIBLIOGRAPHY

Teaching material provided by the lecturer.

TIME SCHEDULE

TBD