

## “EUROPEAN SCHOOL OF ANTENNAS”

### ANTENNA MEASUREMENT COURSE



13 June – 17 June 2016  
Madrid, SPAIN

#### COURSE TOPICS

The course introduces the problematic of antenna measurement. It describes the classical antenna measurement techniques like open fields, compact ranges and near field systems. The course also introduces the most innovative antenna measurement technologies, in particular the special techniques for millimetre and submillimetre frequency bands, the reverberation chambers and the measurement procedures for MIMO systems. The course is aimed to PhD students and engineers from antenna companies.

#### CONTENTS

- Introduction to antenna measurement systems.
- Far field systems for antenna measurements.
- Measurements in Compact Antenna Test Ranges.
- Millimetre and sub millimetre antenna measurements.
- Planar Near Field Systems.
- Cylindrical Near Field Systems.
- Spherical Near Field Systems.
- Multiprobe Systems.
- Post-processing techniques in antenna measurements.
- OTA Measurements of Wireless Devices with MIMO and OFDM in Rich Isotropic Multipath (RIMP)
- Emulation of RIMP in Reverberation chambers.



#### COURSE GENERAL INFO

##### Schedule:

- 22 hours for Theoretical lessons
- 8 hours for Practical exercises
- 1 technical tour
- Final exam

Prerequisites: Basic antennas

Students: 25

Credits: 2 ECTS credits

##### REGISTRATION FEE

- University: 440 €
- Industry: 880 €

Further information and registration:

<http://www.antennasvce.org/Community/Education/Courses>

**The course is sponsored with 4 grants offered to students by:**



### COURSE COORDINATOR

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### TEACHERS

- A. Alayon Glazunov (Chalmers – Sweden)
- Antti Räisänen (Aalto – Finland)
- Olav Breinbjerg (DTU – Denmark)
- Sergiy Pivnenko (ASY SOL-Spain)
- Lars Foged (MVG – Italy)
- Manuel Sierra Castañer (UPM – Spain)
- Belén Galocha (UPM – Spain)

### COURSE LOCATION

ETSI Telecomunicación. Universidad Politécnica de Madrid (UPM). Metro: Ciudad Universitaria.

