Course guides
230632 - ARRAYS - Array Processing and Smart Antennas

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications.
Degree: MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Optional subject).
MASTER'S DEGREE IN ADVANCED TELECOMMUNICATION TECHNOLOGIES (Syllabus 2019). (Optional subject).
Academic year: 2020 ECTS Credits: 5.0 Languages: English, Spanish

LECTURER
Coordinating lecturer: Perez Neira, Ana Isabel
Others: Lagunas Hernandez, Miguel Angel

PRIOR SKILLS
Signal Processing, Communications II.

TEACHING METHODOLOGY
master classes

LEARNING OBJECTIVES OF THE SUBJECT
Advanced front-end design for communication, location and navigation systems.
Basic contents of the course are: Networking and updating of reference codes in the space and time domains, multi-channel architectures, acquisition and monitoring, super-resolution.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Self study</td>
<td>86,0</td>
<td>68.80</td>
</tr>
<tr>
<td>Hours large group</td>
<td>39,0</td>
<td>31.20</td>
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</tbody>
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Total learning time: 125 h

CONTENTS

1. Introduction (6 hours)

2. Beamforming (14 hours)
### 3. Detection and estimation of arrival angle (8 hours)

### 4. Adaptive beamforming (7 hours)

### 5. Tx-Rx Array processing (10 hours)

### GRADING SYSTEM

- Final Examen: 60%
- Participation and class assistance: 40%

### RESOURCES

Other resources: