230632 - ARRAYS - Array Processing and Smart Antennas

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications
Academic year: 2018
Degree: MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Teaching unit Optional)
ECTS credits: 5  
Teaching languages: Spanish, English

Teaching staff
Coordinator: 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>Total learning time: 125h</th>
<th>Hours large group: 39h</th>
<th>31.20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
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<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td>Self study:</td>
<td>86h</td>
<td>68.80%</td>
</tr>
</tbody>
</table>
## Content

1. **Introduction (6 hours)**

   Degree competences to which the content contributes:

2. **Beamforming (14 hours)**

   Degree competences to which the content contributes:

3. **Detection and estimation of arrival angle (8 hours)**

   Degree competences to which the content contributes:

4. **Adaptive beamforming (7 hours)**

   Degree competences to which the content contributes:

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

   Degree competences to which the content contributes:

## Qualification system

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

## Bibliography

**Others resources:**