Learning objectives of the subject

Background in electromagnetics applied to wireless communications, from an engineering point of view. Understanding of electromagnetic radiation and diffraction, and ability to analytically compute radiated and diffracted fields. Understanding of modern numerical methods for computer simulation of antenna radiation and field diffraction. Ability to write simple computer programs for numerical simulation.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group:</th>
<th>39h</th>
<th>31.20%</th>
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<tbody>
<tr>
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<td>Self study:</td>
<td>86h</td>
<td>68.80%</td>
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## Content

1. **Fundamentals**

   Degree competences to which the content contributes:

2. **Properties of matter, wave propagation, reflection and transmission**

   Degree competences to which the content contributes:

3. **Electromagnetic radiation equations**

   Degree competences to which the content contributes:

4. **Electromagnetic theorems and principles**

   Degree competences to which the content contributes:

5. **Guided propagation**

   Degree competences to which the content contributes:

6. **RCS, scattering and high-frequency techniques**

   Degree competences to which the content contributes:

7. **Integral equations, Green's functions and the Method of Moments**

   Degree competences to which the content contributes:

8. **The Method of Moments**

   Degree competences to which the content contributes:

9. **Numerical methods in Electromagnetics**

   Degree competences to which the content contributes:
10- Efficient programming

Degree competences to which the content contributes:

Qualification system

Students will solve a problem (or a few short exercises) at the end of each chapter (60%). In some chapters, the problem will consist on a MATLAB program to compute diffracted or radiated fields. Additionally, there will be final examination on January 2013 (40%).

Regulations for carrying out activities

All exercises and the final examination are mandatory.

Bibliography