Course guide
230053 - ANTENES - Antennas

UNIT IN CHARGE: Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications.

Degree: BACHELOR’S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).

Academic year: 2022  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: Consultar aquí / See here:
https://telecos.upc.edu/ca/estudis/curs-actual/professorat-responsables-coordinadors/responsables-assignatura

Others: Consultar aquí / See here:
https://telecos.upc.edu/ca/estudis/curs-actual/professorat-responsables-coordinadors/professorat-assignat-idioma

PRIOR SKILLS

Electromagnetic Waves and Transmission Lines knowledge

REQUIREMENTS

ELECTROMAGNETICS WAVES - Precorequisite
RADIATION AND PROPAGATION - Precorequisite

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Generical:
12 CPE N3. They will be able to identify, formulate and solve engineering problems in the ICC field and will know how to develop a method for analysing and solving problems that is systematic, critical and creative.

TEACHING METHODOLOGY

Application classes
Lecture classes
Laboratory classes
Group work (non-classroom)
Individual work (non classroom)
Other activities
Short-answer tests (Control)
Long answer tests (final exam)
Laboratory practices
LEARNING OBJECTIVES OF THE SUBJECT

Analyse radiating structures by obtaining the parameters that characterise them, establishing the paradigms of their operation.

Learning outcome:

Knows how to select antennas, equipment and systems for transmission, propagation of unguided radio frequency electromagnetic waves.

Analyses components and their specifications for unguided communication systems.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>85.0</td>
<td>56.67</td>
</tr>
<tr>
<td>Hours small group</td>
<td>13.0</td>
<td>8.67</td>
</tr>
<tr>
<td>Hours large group</td>
<td>52.0</td>
<td>34.67</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

(ENG) Tema 0. Course presentation

Description:
Course introduction

Full-or-part-time: 1h
Theory classes: 1h

(ENG) Tema 1. Radiation fundamentals.

Description:

Full-or-part-time: 15h 20m
Theory classes: 5h
Laboratory classes: 2h
Self study: 8h 20m

(ENG) Tema 2. Analysis of basic antennas.

Description:

Full-or-part-time: 49h
Theory classes: 18h
Laboratory classes: 1h
Self study: 30h
(ENG) Tema 3. Antenna arrays.

Description:

Full-or-part-time: 40h 20m
Theory classes: 14h
Laboratory classes: 3h
Self study: 23h 20m

(ENG) Tema 4. Aperture antennas

Description:

Full-or-part-time: 39h 20m
Theory classes: 14h
Laboratory classes: 2h
Self study: 23h 20m

ACTIVITIES

(ENG) Proves de resposta curta (Control)

(ENG) Proves de resposta curta (Control)

(ENG) Pràctica de laboratori

(ENG) Pràctica de laboratori

(ENG) Pràctica de laboratori

(ENG) Pràctica de laboratori

(ENG) Pràctica de laboratori
**GRADING SYSTEM**

The evaluation is done using two controls with a 15% weight each, 10% of practices and a final exam with a 60% weight.

This course will assess generic skills:
- Ability to identify, formulate and solve engineering problems (Middle Level)
- Knowledge of and experimentation instruments and tools (Middle Level)

**BIBLIOGRAPHY**

**Basic:**