Course guides
300251 - IC-MP2 - Communications Installations

Unit in charge: Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit: 744 - ENTEL - Department of Network Engineering.
Degree: BACHELOR’S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Optional subject).
Academic year: 2021 ECTS Credits: 7.5 Languages: Catalan, Spanish

LECTURER
Coordinating lecturer: Definit a la infoweb de l'assignatura.
Others: Definit a la infoweb de l'assignatura.

PRIOR SKILLS
Understand the fundamentals of telecommunications
Knowing the basis of computers

REQUIREMENTS
Computer Science 2

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE29. CE 23 AEROP. Conocimiento aplicado de: edificación; electricidad; electrotecnia; electrónica; mecánica del vuelo; hidráulica; instalaciones aeroportuarias; ciencia y tecnología de los materiales; teoría de estructuras; mantenimiento y explotación de aeropuertos; transporte aéreo, cartografía, topografía, geotecnia y meteorología. (CIN/308/2009, BOE 18.2.2009)

General:
CG1. (ENG) CG1 - Capacidad para el diseño, desarrollo y gestión en el ámbito de la ingeniería aeronáutica que tengan por objeto, de acuerdo con los conocimientos adquiridos, los vehículos aeroespaciales, los sistemas de propulsión aeroespacial, los materiales aeroespaciales, las infraestructuras aeroportuarias, las infraestructuras de aeronavegación y cualquier sistema de gestión del espacio, del tráfico y del transporte aéreo.
CG2. (ENG) CG2 - Planificación, redacción, dirección y gestión de proyectos, cálculo y fabricación en el ámbito de la ingeniería aeronáutica que tengan por objeto, de acuerdo con los conocimientos adquiridos, los vehículos aeroespaciales, los sistemas de propulsión aeroespacial, los materiales aeroespaciales, las infraestructuras aeroportuarias, las infraestructuras de aeronavegación y cualquier sistema de gestión del espacio, del tráfico y del transporte aéreo.

Transversal:
CT6. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
CT3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
CT4. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
CT5. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.
Basic:
CB3. (ENG) CB3 - Que los estudiantes tengan la capacidad de reunir e interpretar datos relevantes (normalmente dentro de su área de estudio) para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética
CB4. (ENG) CB4 - Que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado

TEACHING METHODOLOGY
The first two topics will be taught with blackboard and transparencies classes by the teacher, and the realization of problems and exercises for students and conducted by the teacher.
The two latest contents will be taught so that students have a more active role, more justified because they are practical engineering contents, making two-project works in groups of students.

LEARNING OBJECTIVES OF THE SUBJECT
At the end of the course Communications Installations, the student should be able to:

Determine, based on the concepts learned in class, components for communications networks and services and communication facilities.

Explain the meaning of the most important concepts of network and telecommunication services, from local area networks and fieldbuses.

Define the most important parameters of communication networks, the fieldbus and control facilities.

Identify the most appropriate technical solutions to project a communications facility and communications installation.

Use the concepts and tools to specify, plan and manage a communications facility and control facilities.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group</td>
<td>18,5</td>
<td>9.87</td>
</tr>
<tr>
<td>Hours large group</td>
<td>28,0</td>
<td>14.93</td>
</tr>
<tr>
<td>Guided activities</td>
<td>24,0</td>
<td>12.80</td>
</tr>
<tr>
<td>Hours small group</td>
<td>12,0</td>
<td>6.40</td>
</tr>
<tr>
<td>Self study</td>
<td>105,0</td>
<td>56.00</td>
</tr>
</tbody>
</table>

Total learning time: 187.5 h
## CONTENTS

### COMMUNICATIONS NETWORKS. INTERNET

**Description:**

**Related activities:**

**Full-or-part-time:** 47h 30m
- Theory classes: 14h
- Practical classes: 5h
- Self study: 28h 30m

### LOCAL AREA NETWORKS

**Description:**

**Related activities:**

**Full-or-part-time:** 45h
- Theory classes: 8h
- Practical classes: 4h
- Laboratory classes: 6h
- Self study: 27h

### COMMUNICATIONS INSTALLATIONS

**Description:**

**Related activities:**
Projects implementation. Practical sessions.

**Full-or-part-time:** 50h
- Laboratory classes: 6h
- Guided activities: 14h
- Self study: 30h
COMMUNICATIONS INSTALLATIONS. INDUSTRIAL NETWORKS. FIELDBUS

Description:

Related activities:
Projects implementation. Exams and controls.

Full-or-part-time: 45h
Theory classes: 6h
Practical classes: 2h
Guided activities: 10h
Self study: 27h

ACTIVITIES

EXAMINATION OF THEORY AND PROBLEMS.

Description:
Performing a control at the end of the first topic

Specific objectives:
From the exercise delivered by the student, he/she should be able to confirm that:
The student has effectively followed the lectures and problems, and has made and seized the hours of autonomous learning.
He/she has learned well and knows the fundamentals, seen in lectures and problems, corresponding to the evaluation period.
He/she is able to connect and integrate the concepts, techniques and technologies explained.
He/she has a clear idea of the orders of magnitude of the parameters of telematics networks and services.
The student knows and accurately estimates roughly as appropriate values of variables and parameters.

Material:
The students have their notes and lecture slides, class problems and proposed, previous to the examination.

Delivery:
The written exercise given by the student.

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

PRESENTATION OF TWO PAPERS-PROJECTS

Description:
Each working group presents the work done on the topics 3 and 4. All the students should expose, and then answer questions from peers and teacher. The quality and interest of the students’ questions are also evaluated.

Specific objectives:
Learning to summarize, explain and convince about a project. Learn to prepare a presentation.

Material:
Especially the work done in the hours of practice dedicated to that purpose.

Delivery:
The working-memory project composed of the technical project and exposition.

Full-or-part-time: 4h
Practical classes: 4h
GUIDED VISITS TO COMMUNICATIONS FACILITIES

Description:
Visits accompanied by teacher to communication facilities of the UPC and/or airport.

Specific objectives:
Meet real communication facilities. Identify the different elements that compose them, and their values and parameters.

Material:
Maps and background information.

Full-or-part-time: 4h
Practical classes: 4h

PROBLEM ASSIGNMENTS

Description:
Problem assignment to the student in order to be solved autonomously.

Material:
Problem statements provided by the teachers.

Full-or-part-time: 2h
Practical classes: 2h

GRADING SYSTEM

Evaluation criteria to be applied are published in the infoweb of the course.

EXAMINATION RULES.

Assistance to activities directed and assessments are mandatory

BIBLIOGRAPHY

Basic: