

300251 - IC-MP2 - Communications Installations

Coordinating unit:	300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering		
Teaching unit:	744 - ENTEL - Department of Network Engineering		
Academic year:	2018		
Degree:	BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional) BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING/BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2015). (Teaching unit Optional)		
ECTS credits:	7,5	Teaching languages:	Spanish

Teaching staff

Coordinator: 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 2

Degree competences to which the subject contributes

Specific:

1. 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)

Transversal:

2. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
3. 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.
4. 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.
5. 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.

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 in groups and then conduct the teacher.

The two latest content will be taught so that students have a more active, more justified because they are practical engineering content, making two-project work in groups of 4 students.

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Learning objectives of the subject

At the end of assignatura Instal.lacions of teleconferencing, 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 uma communications installation.

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

Study load

Total learning time: 187h 30m	Hours large group:	28h	14.93%
	Hours medium group:	18h 30m	9.87%
	Hours small group:	12h	6.40%
	Guided activities:	24h	12.80%
	Self study:	105h	56.00%

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Content

(ENG) NETWORKING. INTERNET	Learning time: 49h Theory classes: 10h Practical classes: 8h Self study : 31h
<p>Description: Presentation of the subject. Networks and Telecommunication Services. Types. Infrastructures Network Architectures Protocols Internet. Application. Transport. Network. Error control, flow, congestion. Addressing. Routing The delay in communications networks.</p> <p>Related activities: Guided visits to UPC and Airports facilities. Conferences. Realization of exercises and problems. Project realization. Exams and controls. Laboratory practices.</p>	
(ENG) LOCAL AREA NETWORKS	Learning time: 39h Theory classes: 8h Practical classes: 4h 30m Laboratory classes: 6h Self study : 20h 30m
<p>Description: LANs Data link Interconnection. Dispositives. Addressing. VLANs Structured cabling. WIFI. Smart objects</p> <p>Related activities: Guided visits to UPC and Airports facilities. Conferences. Realization of exercises and problems. Project realization. Exams and controls.</p>	
(ENG)I COMMUNICATIONS FACILITIES	Learning time: 35h 20m Laboratory classes: 6h Guided activities: 14h Self study : 15h 20m
<p>Description: ICT infrastructures in buildings. Planning. Requirements of needs. pROJECTS. ICT facilities in airports.</p> <p>Related activities: Guided visits to UPC and Airports facilities. Conferences. Realization of exercises and problems. Project realization. Exams and controls.</p>	



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(ENG) COMMUNICATIONS OF FACILITIES.
INDUSTRIAL NETWORKS. FIELD BUS

Learning time: 64h 10m

Theory classes: 10h
Practical classes: 6h
Guided activities: 10h
Self study : 38h 10m

Description:

Industrial networks. Field bus. Different types. DOG. Konnex. Lonworks, etc. Distributed control. Security systems. Domotics Industrial facilities. SCADA supervisory systems. Smart buildings Draft.

Related activities:

Guided visits to UPC and Airports facilities. Conferences. Realization of exercises and problems. Project realization. Exams and controls.

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Planning of activities

<p>EXAMINATION OF THEORY AND PROBLEMES.</p>	<p>Hours: 1h Practical classes: 1h</p>
<p>Description: Performing a control at the end of the first topic</p> <p>Support materials: students have their notes and lecture slides, problems and proposed class before examining</p> <p>Descriptions of the assignments due and their relation to the assessment: The written exercise given by the student.</p> <p>Specific objectives: From exercise delivered by the student 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 has learned well and knows the fundamentals, seen in lectures and problems, the evaluation period. He is able to connect and integrate concepts, techniques and technologies explained. He has a clear idea of "the orders of magnitude of the parameters of telematic networks and services. The student knows and accurately estimate roughly as appropriate values "of variables and parameters.</p>	
<p>PRESENTATION OF TWO PAPERS-PROJECTS</p>	<p>Hours: 4h Practical classes: 4h</p>
<p>Description: Each working group consists of four students, they will present the work done on the issues 3,4 and 5. They should expose all students and then answer questions from peers and teacher. The quality and interest of the students' questions are also evaluated</p> <p>Support materials: Especially the work done in the hours of practice dedicated to that purpose.</p> <p>Descriptions of the assignments due and their relation to the assessment: The working-memory project format transparencies technical project and exhibition.</p> <p>Specific objectives: Learning to summarize, explain and convince about a project. Learn to prepare a presentation.</p>	
<p>GUIDED VISITS TO COMMUNICATIONS FACILITIES</p>	<p>Hours: 4h Practical classes: 4h</p>
<p>Description: Visits accompanied by teacher to communication facilities of the UPC and / or airport.</p> <p>Support materials: Maps and background information.</p> <p>Descriptions of the assignments due and their relation to the assessment: Brief report of what they learned in the visit</p> <p>Specific objectives: Meet real communication facilities. Identify the different elements that compose them and their values and parameters.</p>	

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PROBLEM ASSIGNMENTS	Hours: 4h Self study: 4h
Description: Problem assignment to the student in order to be solved autonomously	
Support materials: Problem statements provided by the professors	

Qualification system

Regulations for carrying out activities

Assistance to activities directed and assessments are mandatory

Bibliography

Basic:

Casademont Serra, Jordi; Beltrán Martínez, Victoria. Redes de comunicaciones : de la telefonía móvil a Internet [on line]. Barcelona: Edicions UPC, 2010 Available on: <<http://hdl.handle.net/2099.3/36575>>. ISBN 9788498804416.

Kurose, James F.; Ross, Keith W.; Barrio Solórzano, Manuel. Redes de computadores : un enfoque descendente basado en Internet. 2ª ed. Madrid [etc.]: Pearson Educación, 2004. ISBN 8478290613.