

## 30332 - Telecommunications Electronic Systems

### Syllabus Information

**Academic Year:** 2019/20

**Subject:** 30332 - Telecommunications Electronic Systems

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 438 - Bachelor's Degree in Telecommunications Technology and Services Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject Type:** Compulsory

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

#### 1.2.Context and importance of this course in the degree

#### 1.3.Recommendations to take this course

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

#### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

### 4.Methodology, learning tasks, syllabus and resources

#### 4.1.Methodological overview

The learning process that is designed for this subject is based on the following:

A learning methodology based on projects carried out by groups of students. The process is guided throughout its development and throughout the different methodologies used.

Theoretical presentations (M1) are included to add contents on components, circuits, and design methods, specific key points will present and developed in seminar sessions (M2).

Learning on computer simulation tools and design tools, as well as on electronic assembly and debugging, is formalized in practice sessions (M8, M9). Some of these practical sessions are presented as stand-alone problems whose solution will be reused in the project (M5).

Other non-contact type methods work and theoretical and practical studies (M12, M14) are also used.

The background work of students in the development of a guided project, through which they will acquire the desired skills with teacher supervision (M6). Individual tutorials are planned and work in a group is scheduled to monitor the development of projects (M10).

Evaluation is also a time of learning and one of its main moments is the presentation of the project by the group (M7, M11).

#### 4.2.Learning tasks

Because of the methodology to be applied, the program takes the form of a schedule of activities to be developed while the groups advance in the design. The theoretical aspects will be introduced as needed for the development of the design.

### **4.3.Syllabus**

The course will address the following topics:

1. Statement. Presentation of the methodology. Examples.
2. Specifications, planning and objectives.
3. Preliminary design: Block Diagram. Selecting technologies.
4. Preliminary design: Legal Considerations (regulations). Mechanical considerations. Other considerations (ergonomic, thermal, etc.).
5. Preliminary design: Channel Analysis and implications for electronic design.
6. Electronic design of the transmitter. Component selection. Construction of the prototype.
7. Electronic design of the receiver. Component selection. Construction of the prototype.
8. Installation and set-up the communications link. Assessment of compliance with specifications.
9. Datasheet of the system.
10. The final presentation of the system.

### **4.4.Course planning and calendar**

Given the nature of the subject, all the sessions will take place in an electronics laboratory where the students have to develop all planned activities. The calendar and schedule of these sessions will adhere to the directive of the EINA, the presentation of the projects will adhere to the official exam period.

### **4.5.Bibliography and recommended resources**

[http://biblos.unizar.es/br/br\\_citas.php?codigo=30332&year=2019](http://biblos.unizar.es/br/br_citas.php?codigo=30332&year=2019)