30338 - High Frequency: the Basics

Syllabus Information

Academic Year: 2019/20
Subject: 30338 - High Frequency: the Basics
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 438 - Bachelor's Degree in Telecomunications Technology and Services Engineering
ECTS: 6.0
Year: 3
Semester: Second 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 methodology followed in this course is oriented towards the achievement of the learning objectives. It is based on participation and the active role of the student favors the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, assignments, computer lab sessions, autonomous work, and tutorials.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus as well as other course-specific learning materials; including a discussion forum.

Further information regarding the course will be provided on the first day of class.

4.2.Learning tasks

This is a 6 ECTS course organized as follows:

- **Lectures** (40 hours). Lectures run for 3.5 weekly hours. Regular attendance is highly recommended.
- **Practice sessions** (10 hours). The problem wordings will be available via Moodle.
- **Computer lab sessions** (10 hours). Sessions will take place every 2 weeks (5 sessions in total) and they last 2.0 hours each.
- **Assignments** (16 hours).

4.3.Syllabus

The course will address the following topics:

Chapter 1. Introduction and goals of the subject (1h).
Chapter 2. Circuit theory for microwave waveguides (5h).
Chapter 3. Passive microwave circuits (7h).
Chapter 4. Resonators and microwave filters (7h).
Chapter 5. Diodes and microwave transistors (6h).
Chapter 6. Microwave amplifiers (14h).

LABORATORY WORKS:
TL1. Microwave filter design using CAD tools.
TL2. Linear and narrow bandwidth microwave amplifier design using CAD tools.
TL3. Low noise microwave amplifier design using CAD tools.
TL4. Power measurements in microwave networks.
TL5. The vectorial network analyzer.

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to EINA website (*http://eina.unizar.es*).

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=30338&year=2019