

60940 - High-Frequency Engineering

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	533 - Master's Degree in Telecommunications Engineering
ECTS	2.5
Course	2
Period	First semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The Learning planning which concerns the teaching methodology in this course is based on the following:

1. Lectures. - Teacher presentation or explanation in class (with possible proofs and demos).

2. Based problem Learning and assignments.-Oriented approach so that the students learn by means of real problems in small groups under tutor supervision.

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3. Laboratory.- Activities in special spaces with specialized equipment (laboratory, computer rooms).
- 4 Theoretical works. Preparation of seminars, lectures, research papers, reports, etc. to be presented or delivered in class.
5. Grading.-Set of written, oral tests, practices, projects, jobs, etc. used to assess the student skills.
6. Personal Assessment- meetings to review and discuss the materials and topics presented in lectures.

5.2.Learning activities

1. Problems and case studies (7 hours) in which problem solving and practical cases are held.
2. Laboratory Practice (18 hours) in which students will perform Lab sessions of 2/3 hours.
3. Practical project, supervised by the teacher, based on the course contents (device simulation, measurement and result analysis of a selected topic) and public defense. The following key points will be considered: correctness, right analysis and conclusion summary. Furthermore, presentation skills will be evaluated.
4. Personalized assessment to students through individual meetings

5.3.Program

1. Course Introduction
2. High Frequency and Microwave Antennas.
3. Microwave Passive Circuits
4. Microwave Active Circuits

5.4.Planning and scheduling

The following distribution of activities throughout the semester are scheduled:

- Weekly sessions of lectures, which include problem solving sessions that cover a total of 7 hours.
- 6/9 2/3-hour Lab sessions in small groups which are held in the High Frequency Laboratory (L3.06).
- Personal Assessment meetings are flexible and agreed for convenience between students and professor.

Problem Lectures and laboratory sessions are held according to the schedule set by University. Timetables will be announced on the EINA website.

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As far as grading is concerned, partial (midterm) written examination dates will be announced by the university and be carried out in two parts, at mid-course and at the end of the course. It will be announced in advance.

Related Final examination shall be proposed by University.

5.5. Bibliography and recommended resources

- Balanis, Constantine A.. Antenna theory : analysis and design / Constantine A. Balanis . - 2nd ed. New York [etc.] : John Wiley, cop. 1997
- Rohde, Ulrich L.. RF/Microwave Circuits Design For Wireless Applications / Ulrich L. Rohde, David P. Newkirk John Wiley and Sons, 2004
- Haupt, Randy L.. Genetic Algorithms in Electromagnetics / Randy L. Haupt, Douglas H. Werner John Wiley and Sons, 2007
- Electromagnetic Optimization by Genetic Algorithms / Yahya Rahmat-Samii (Editor), Eric Michielssen (Editor) John Wiley and Sons, 1999
- Numerical techniques for Microwave and Millimeter-Wave Passive Structures / T. Itoh John Wiley and Sons, 1989
- Uher, J.. Waveguide Components for Antenna Feed Systems: Theory and CAD / J. Uher, J. Bornemann, U. Rosenberg Artech House, 1993
- Colantonio, P.. High Efficiency RF and Microwave Solid State Power Amplifiers / P. Colantonio, F. Giannini, E. Limiti John Wiley and Sons, 2009
- Pedro, J.C.. Intermodulation Distortion in Microwave and Wireless Circuits / J. C. Pedro, N.B. Carvalho Artech House, 2003