Universidad Zaragoza
1542

Year : 2018/19

30340 - Transfer Equipment and Systems

Syllabus Information

Academic Year:	2018/19
Subject:	30340 - Transfer Equipment and Systems
Faculty / School:	110 -
Degree:	438 - Bachelor's Degree in Telecomunications Technology and Services Engineering
ECTS:	6.0
Year:	4
Semester:	First semester
Subject Type:	
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

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

Methodology, learning tasks, syllabus and resources

Methodological overview

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.

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- tutor meetings to review and discuss the materials and topics presented in lectures.

Learning tasks

1. Class Lectures (40 hours) in which the theoretical foundations of the contents of the subject are presented and where student participation is encouraged.

2. Problems and case studies (10 hours) in which problem solving and practical cases are held.

3. Laboratory Practice (10 hours) in which students will perform 5 Lab sessions of 2 hours.

4. Practical group work, supervised by the teacher, based on the course contents and public presentations.

5. Personalized assessment to students through individual meetings.

Syllabus

1.Radio Frequency Allocation

1.1 Radio spectrum Regulation.

1.2 Frequency Allocation.

2. Review of Electromagnetic radiation principles.

2.1 Fields for electric and magnetic current sources.

2.2 Uniqueness and volume equivalence theorems

2.3 Electric and Magnetic Fields for Electric and Magnetic Current Sources.

3. Aperture Antennas and Broadband Antenna Analysis

3.1 Aperture Antennas

3.2 Slots Antennas.

3.3 Horn Antennas

3.4 Parabolic Reflector Antennas

3.5 Broadband Antennas

4. Antenna array synthesis.

4.1 Array analysis review.

4.2 Array synthesis.

4.2.1 Fourier transform method.

4.2.2 Chebyshev transform method.

4.3 Feeding networks and case studies the telecommunication field.

5. Basic Radio Transmission Systems.

5.1 Transmitters

5.2 Receivers

5.3 Transmodulators (Gap Fillers)

5.4 Transponders.

Laboratory Practices

Laboratory Practice 1. Rectangular and circular aperture radiation parameters.

Laboratory Practice 2. Horn antenna radiation parameters.

Laboratory Practice 3. Parabolic Reflector radiation parameters.

Laboratory Practice 4. Array Synthesis I.

Laboratory Practice 5. Array Synthesis II.

Supervised Projects and Seminars

Student Project which deals with the design and development of supervised assessments and their presentation as a workshop.

Course planning and calendar

The following distribution of activities throughout the semester are scheduled:

- Weekly sessions of lectures, which include problem solving sessions that cover a total of 50 hours.

- 5 2-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.

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.

Bibliography and recommended resources

- Antenas / Angel Cardama Aznar ... [et al.] . - 2ª ed., reimp. Barcelona : UPC, 2005
- Balanis, Constantine A.. Antenna theory : analysis and design / Constantine A. Balanis . - 2nd. ed. New York [etc.] : John Wiley, cop. 1997
- Hernando Rábanos, José María. Transmisión por radio / José María Hernando Rábanos . - 7ª ed. Madrid : Centro de Estudios Ramón Areces, 2013
- Rohde, Ulrich L. RF/Microwave Circuits Design For Wireless Applications / Ulrich L. Rohde, David P. Newkirk John Wiley and Sons

http://www.itu.int/es/about/Pages/default.aspx

http://www.mityc.es/telecomunicaciones/Espectro/Paginas/CNAF.aspx