Universidad Zaragoza

Year : 2019/20

60928 - Mobile communication networks and services

Syllabus Information

Academic Year: 2019/20
Subject: 60928 - Mobile communication networks and services
Faculty / School: 110 -

Degree: 533 - Master's Degree in Telecommunications Engineering

ECTS: 5.0
Year: 1
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 achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, guided assignments, tutorials, assessment tests, and autonomous work.

4.2.Learning tasks

The course includes the following learning tasks:

- **Lecture** (42 hours). Presentation by the teacher of the main contents of the course, combined with the active participation of students. This activity will take place in the classroom. This methodology, supported by the student's autonomous work, is designed to provide students with the theoretical foundations for the course.
- **Practice sessions** (8 hours). Problem-solving and practical cases proposed by the teacher, with the possibility of presenting them individually or in groups, under the teacher's supervision. This activity will take place in the classroom and it may require preparatory work for students.
- **Guided assignment** (28 hours). This activity will help acquire all the proposed learning outcomes. It aims at solving practical cases, analysis, design, dimensioning and planning of access networks by applying techniques and procedures seen in the teaching sessions. The progress of the work will be presented periodically to the teacher.

Students will submit an explanatory final report including the methodology used and a justification of the solution.

- **Tutorials.**
- **Assessment tests.**
- **Autonomous work.**

4.3.Syllabus

The course will address the following topics:

Section 0. Introduction

- Course presentation.
- Evolution of the mobile communication sector. Evolution of the air interface of cellular communication systems toward 4G. Key features of 4G systems. Standardisation activities.

Section 1. Mobile networks

- Architecture reference models for public mobile networks: Functional elements, interfaces and protocols.
- Main signalling procedures: Session and bearer management, mobility management,...
- Radio interface. Overall functional split, radio protocol architecture. Services, functions and radio interface procedures.
- QoS, radio resource management and spectrum management.

Section 2. New mobile network scenarios and 5G evolution

- Evolution of 4G mobile networks.
- Evolution of WLAN networks.
- Interoperation and coexistence of heterogeneous networks in the new scenarios of integration.

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 the EINA website.

4.5.Bibliography and recommended resources

http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=60928&Identificador=4876