Universidad Zaragoza

Academic Year/course: 2021/22

31006 - Multimedia engineering and interactivity

Syllabus Information

Academic Year: 2021/22
Subject: 31006 - Multimedia engineering and interactivity
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 581 - Bachelor's Degree in Telecomunications Technology and Services Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject Type: Optional
Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

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

M 1: Participative Lecture

Presentation by the lecturer of the main contents of the course (40 hours). This activity will take place in the classroom unless other circumstances advise to take virtual lectures. Theoretical knowledge is provided to the students in such a way that it will allow them to achieve all the specified learning outcomes and all the specified competencies.

M 8: Classroom Practical Sessions

Statement and/or the resolution of exercises and problems in the classroom. Their topics will be closely related to the contents of the course (10 hours). This activity is designed to advance gradually in all specified learning outcomes and competencies transversally.

M4: Supervised personal or team practical work

Deliverables will be requested related to the resolution of practical problems in teams for several parts of the syllabus. Results must be submitted in time and in the correct format. This activity is designed to consolidate all specified learning outcomes and competencies as well as their development. The results of these works is one of the evaluation activities (E2).

M11: Supervision of individual or team practical work

While performing practical work each team must meet regularly with the lecturer in order to follow up the work, to assess the project progress and to get an answer to the questions that could have arisen (2 hours). Learning outcomes and competencies that students acquire through this activity are shared by activity M4.

M9 (8 hours) and M15: Laboratory Sessions

M9 involves eight hours in the computer classroom, in several (up to 5) 2-hour practical sessions unless other circumstances advise to take virtual lab sessions. The efficient achievement of the sessions time, some previous preparations of the work are required and some after-lab work with the obtained results to settle the concepts (M15). Through these activities, all specified learning outcomes and competencies are strengthened and reinforced. In the documentation delivered, each student will be able to find a detailed description of the activities to be performed in the lab as well as the way in which the student must demonstrate the acquisition of the relevant results and competences since this work belongs also to one of the evaluation activities (E3).

M14: Visits

To complete the training of the students some visits are planned. During these visits, each student will able to get access to infrastructure, services and systems that have been previously known in the classroom. The planned visits are: Nationa Reference Center for Audiovisual Technologies, Walqa (Huesca) Usability Lab, Walqa (Huesca), Aragonese Corporation of Radio and Television (Zaragoza)

4.2. Learning tasks

The course includes the following learning tasks:

A1. Lectures

A2: Practical classes

A3. Lab work

A4: Projects

A5: Tutoring

A6: Evaluation.

4.3. Syllabus

1.- INTRODUCTION TO MULTIMEDIA AND INTERACTIVE TELECOMMUNICATION SYSTEMS AND SERVICES. (1 HOURS)

- 1.1.- Introduction, description and Classification of multimedia systems
- 1.2.- Interactivity, Usability and Accessibility.
- 1.3.- Past, present and future of multimedia and interactive telecommunication systems and services

2- MULTIMEDIA SERVICES (14 HOURS)

- 2.1.- MULTIMEDIA SIGNALS
  - Audio, image, video, text, GPS, others
- 2.2.- MULTIMEDIA SYSTEMS
  - Equipment, systems (hardware, software and middleware), regulations
- 2.3.-ACCESS SYSTEMS
  - CMS, video servers, architectures, protocols and standards (including Capture, advanced processing, transportation.

(videoconference)

- Conversion of real image to virtual image.
- 3D and UHD image
- Video Stream.

- 2.4.- DISTRIBUTION SYSTEMS
  - IMS NETWORKS
  - Television, internet, IPTV

3- MULTIMEDIA AUDIO AND VIDEO CODING SYSTEMS. (18 HOURS)

- 3.1.-AUDIO
  - Coding systems and standards
- 3.2.- IMAGE AND VIDEO
  - Coding systems and standards JPEG, MPEG, HEVC, etc,
- 3.3.- TV SYSTEMS
  - Protocols and standards.
- 3.4.- HYBRID SYSTEMS VIRTUAL AND AUGMENTED REALITY

4- INTERACTIVITY (12 HOURS)

- 4.1.- Introduction to the concept of interactivity.
- 4.2.- The Interaction Design process.
- 4.3.- Interfaces and Interaction
- 4.4.- Interaction Management.

4.5. Bibliography and recommended resources

http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=31006