Multimedia

Academic Year: (2022 / 2023) **Review date: 04/04/2022 11:41:40**

Department assigned to the subject: Computer Science and Engineering Department, Signal and Communications Theory

Coordinating teacher: GONZALEZ CARRASCO, ISRAEL

Type: Compulsory ECTS Credits : 6.0

Year : 5 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Linear Algebra (1st course, 1st semester), Computer Architecture (3th course, 1st semester)

OBJECTIVES

1. Theoretical knowledge on the development of multimedia systems (CECRI1, CEIC1)
2. Capacity to define usability and utility requirements, designing multimedia presentations and systems for everyone according to a set of specifications (CECRI1)
3. Capacity to design, implement and evaluate multimedia presentations and systems, respecting standards and laws (CECRI1)
4. Capacity to problem-solving and decision-making with initiative, autonomy, and creativity (CECRI1, CEIC1)
5. Teamwork, taking different roles and proving its leadership (CECRI1)
6. Capacity to communicate knowledge, skills, and capabilities (CECRI1, CEIC1)

* Competences:
CECRI1. Ability to design, develop, select, and evaluate computer-based systems and applications, guaranteeing their reliability, security and quality within existing ethical, legislative and normative constraints.
CEIC1. Ability to design and build digital system, including computers, computer-based systems, and communication systems.

*Learning Outcomes:
R1. Knowledge and understanding: Have basic knowledge and understanding of the scientific and technological fundamentals of computer engineering, as well as specific knowledge of computer science, computer engineering and information systems.
R3 Engineering Design: Be able to perform engineering designs according to their level of knowledge and understanding that meet the required specifications in collaboration with other engineers.
required specifications in collaboration with other engineers and graduates. Design encompasses devices, processes, methods and objects, and specifications broader than strictly technical, including social awareness, health and safety, environmental and commercial considerations.
R5 Engineering Applications: Graduates will be able to apply their knowledge and understanding to solve problems, conduct research, and design devices or processes in the field of Computer Engineering according to criteria of cost, quality, safety, efficiency, environmental friendliness, and ethical implications. These skills include the knowledge, use and limitations of computer systems, process engineering, computer architectures
engineering, computer architectures, computational models, equipment, practical work, technical bibliography and information sources.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to Multimedia
2. Digitalization
3. Codification of multimedia content (audio, voice, image, video)

3.1. Audio codification
3.2. Video codification
5. Text coding (Natural Language Processing)
6. Multimedia Information Recovery Systems. Generic architecture of an RI system
7. Indexing, Storage and Consultation of multimedia contents

LEARNING ACTIVITIES AND METHODOLOGY

- Theoretical lectures: 1,5 ECTS (CECRI1, CEIC1)
Lectures in which theoretical concepts on multimedia contents will be presented.
- Practical lectures: 1,5 ECTS (CECRI1, CEIC1)
Program different types of encoders in order to understand the technical principles on which multimedia systems are based. Work with automatic multimedia content processing and content retrieval techniques.
- Continuous evaluation exercises (CECRI1, CEIC1): 2,5 ECTS. Two work projects are proposed in order to solve problems and apply knowledge.
- Final Exam: 0,5 ECTS.
- Tutorials: TUTORIALS. Individualized (individual tutorials) or group (group tutorials) assistance to students by the professor.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

- Design project: 70% (CEIC1 y CECRI1).
- Exam: 30% (CEIC1 y CECRI1).

The design project is divided into two parts:
Design Project Block 1 (50%).
Design Project Block 2 (50%).

In order to pass the continuous assessment, it is mandatory to obtain a MINIMUM MARK OF 4 in the final exam.

BASIC BIBLIOGRAPHY

- J. Krasner Motion Graphic Design: Applied History and Aesthetics, Focal Press.

- N. Champan; J. Chapman Digital Multimedia, John Willey.

- V. Costello Multimedia Foundations. Core Concepts for Digital Design, Focal Press.