

Academic Year: ( 2021 / 2022 )

Review date: 11/06/2021 11:22:14

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: MARQUEZ SEGURA, ELENA

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 2

## OBJECTIVES

### LEARNING OUTCOMES

RA1. To acquire advanced knowledge and demonstrate a deep understanding of theoretical and practical aspects and of the work methodology in the field of business administration and digital technology, reaching the forefront of knowledge.

RA2. To be able to apply their knowledge through arguments or procedures developed and supported by themselves, understanding them and identifying its problem-solving capabilities in complex work environments of the fourth era, making use of creative and innovative ideas, able to create new business opportunities.

RA3. To have the ability to collect and interpret data and information on which achieve conclusions including, when it would be necessary and pertinent, the reflection on social, scientific or ethical aspects in the enterprise of the digital age.

RA4. To be able to function in complex situations or that require the development of new solutions in the field of digital business management, both in the academic field and professional one.

RA5. To know how to communicate, in a clear and precise way, knowledge, methodologies, ideas, problems and solutions in the field of business and technology, to all types of audiences (specialized or not).

RA6. To be able to identify their own training needs in order to be always at the forefront of management in the digital age, organizing their own learning with a high degree of autonomy in all types of contexts (structured or not).

### COMPETENCES

#### BASIC AND GENERAL

CG4 - The students should know the main instruments for the analysis of the competitive situation of the companies in the process of digital transformation.

CG6 - The students should know how to make judgments that include an ethical reflection on fundamental business and economic issues in the digital age.

CB1 - Students should demonstrate having and understanding knowledge in a study level grounded in and starting from general secondary education. This level of knowledge should include aspects involving knowledge at the forefront of the study field, with support in advanced text books.

CB2 - Students should apply their knowledge to their work or profession in a professional way; and they need to possess the competences that are typically demonstrated through the elaboration and defense of arguments and the resolution of problems within the field study.

CB3 ¿ Students should have the capacity to collect and interpret relevant data (normally within their study area) to emit judgement that include a reflection about relevant topics on social, scientific, or ethical matters.

CB4 ¿ Students should transmit information, ideas, problems, and solutions to both a specialized and a broader audience.

CB5 ¿ Students should develop those learning abilities needed to pursue posterior studies with a high autonomy degree.

#### CROSSCURRICULAR

CT1 - The students should be able to work in multidisciplinary and/or international teams, as well as to organize and plan the work taking the right decisions based on the available information, gathering and interpreting relevant data to issue judgments and critical thinking within the area of study.

CT3 - The students should be able to assess the reliability and quality of the information and its sources, as well as to use such information in an ethical manner, avoiding plagiarism, and in accordance with the academic and professional conventions of the study area

CT5 - The students should know and be able to handle interpersonal skills on initiative and responsibility, negotiation, intelligence emotional, etc. as well as calculation tools that allow consolidating the basic technical skills which are required throughout professionally

#### SPECIFIC

CE15 - The students should know the main technological products and technology trends associated with management and business, and know how to design its implementation and innovation in organizations

#### DESCRIPTION OF CONTENTS: PROGRAMME

1. Human centered informatics
2. Paradigms, styles and principles of interaction
  - 2.1. Ubiquitous computing and IoT; Social computing; embodied interaction; Virtual, augmented, and mixed reality; CSCW (computer supported collaborative work)
3. Design approaches
  - 3.1. User-centered design (UCD) and participatory design (PD)
  - 3.2. Usability and User Experience (UX)
  - 3.3. Design thinking
4. Designing and prototyping of interactive ecosystems
  - 4.1. Classical and innovative design and prototyping techniques
  - 4.2. Problem framing, divergent, and convergent design
5. Evaluation
  - 5.1. Evaluation kinds: internal and external, with and without users, formative and summative.

#### LEARNING ACTIVITIES AND METHODOLOGY

AF1, AF2, AF3  
MD1, MD2, MD3

AF1. Theoretical/practical classes. 2.5 ECTS. Classroom presentations by the teacher with IT and audiovisual support in which the subject's main concepts are developed, while providing material and bibliography to complement student learning. Resolution of practical cases and problem, posed by the teacher, and carried out individually or in a group

AF2. Tutoring sessions. 0.5 ECTS. Individualized attendance (individual tutoring sessions) or in-group (group tutoring sessions) for students with teacher as tutor.

AF3. Individual or group work. 3 ECTS. Work necessary to learn the course content and apply this knowledge to the understanding, analysis, critical reflexion, and design of interactive systems and their impact in the physical and sociotechnical ecology where it will be used.

MD1. Theory Class. In class lectures by the teacher using IT and audiovisual media, where the main course concepts are developed and where materials and bibliography to complement the students' learning process is provided.

MD2. Lab work. Resolution of practical cases, problems, etc. proposed by the teacher for individual or group work.  
MD3. Tutoring sessions. Individualized attendance (individual tutoring sessions) or in-group (group tutoring sessions) for students with teacher as tutor.

#### ASSESSMENT SYSTEM

<b>% end-of-term-examination/test:</b>	20
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	80

SE1 - Final test

SE2 - Formative evaluation through individual and collaborative assignments

#### BASIC BIBLIOGRAPHY

- Helen Sharp, Jennifer Preece, & Yvonne Rogers Interaction Design: Beyond Human-Computer Interaction, John Wiley & Sons. , 2019.
- Kim Goodwin and Alan Cooper Designing for the digital Age, Wiley, 2009

#### ADDITIONAL BIBLIOGRAPHY

- Amy J. Ko Design methods, Creative Commons License (<https://faculty.washington.edu/ajko/books/design-methods/>), 2018
- Bill Buxton Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kaufmann, 2007
- Bill Moggridge Designing Interactions, MIT Press, 2007
- Don Norman The Design of Everyday Things, Basic Books, 2013
- Eric von Hippel Democratizing Innovation, MIT Press, 2005
- Lars-Erik Janlert and Erik Stolterman Things that keep us busy, MIT Press, 2017

#### BASIC ELECTRONIC RESOURCES

- Paloma Diaz, Ignacio Aedo, Andrea Bellucci y Teresa Onorati . Interactive Systems: <http://spoc.uc3m.es>