

Academic Year: ( 2022 / 2023 )

Review date: 19-05-2022

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: SAEZ ACHAERANDIO, YAGO

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 1

#### REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Have previous knowledge about statistics and/or have passed any of the Fundamentals of Statistics subject, basic programming skills

#### OBJECTIVES

1. Acquire the basic knowledge necessary to carry out an exploratory analysis of objective and conclusive data
2. Get a deep knowledge about the full data analytics cycle
3. Get in touch and use some of the technology tools in the industry for data analysis
4. Being able to tackle "big data" analysis

#### DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to Big Data Data and Business Analytics
2. Models and Technologies for Decision Making
3. Descriptive Analytics
  - 3.1. Exploratory Data Analysis
  - 3.2 Business Reports and Visual Analytics
  - 3.3 Data Warehouses
4. Predictive Analytics and Data Mining
  - 4.1 Basic Concepts in Supervised Learning
  - 4.2 Linear Regression
  - 4.3 Decision Trees
  - 4.4 Evaluation of Classifiers
  - 4.5 Other Classification Techniques
  - 4.6 Ensemble-based Methods
5. Neural Networks and Deep Learning
6. Big Data Specific Technologies
7. Emerging Trends and Impact of Business Analytics

#### LEARNING ACTIVITIES AND METHODOLOGY

AF1. THEORETICAL-PRACTICAL LECTURES. These lectures will present the knowledge that students should acquire. They will receive the lecture notes and will have basic texts of reference to facilitate the follow-up of the classes and the development of the subsequent work. Exercises, practical problems on the part of the student will be solved, and workshops and evaluation tests will be carried out to acquire the required skills.

AF2. TUTORIES. Individualized assistance (individual tutorials) or group (collective tutorials) to students given by the teacher.

AF3. INDIVIDUAL OR GROUP STUDENT WORK.

MD1 THEORY LECTURE. Talks with support of computer and audiovisual media, in which the main concepts of the subject are developed and the materials and bibliography are provided to complement the students' learning process.

MD2. PRACTICES. Resolution of practical cases, problems, etc. organized by the teacher individually and/or in groups.

MD3. TUTORIES. Individualized assistance (individual tutorials) or group (collective tutorials) to students given by the teacher. For 6 credits subjects, 4 hours will be dedicated with 100% of attendance required.

## ASSESSMENT SYSTEM

SE1. FINAL TEST. This test will globally assess the knowledge, skills and abilities acquired throughout all the term.  
SE2. CONTINUOUS ASSESSMENT. In this point, work, oral communication skills, debates, presentations in class, exercises, practices and work in the workshops throughout the course will be evaluated.

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

## BASIC BIBLIOGRAPHY

- Steve Williams Business Intelligence Strategy and Big Data Analytics: A General Management Perspective, Morgan Kaufmann, 2016

## ADDITIONAL BIBLIOGRAPHY

- Stepanek, Hannah Thinking in Pandas, 1st ed. Berkeley, CA: Apress , 2020