

Academic Year: ( 2021 / 2022 )

Review date: 05-07-2021

Department assigned to the subject: Department of Business Administration

Coordinating teacher: USABEL RODRIGO, MIGUEL ARTURO

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

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

Algebra  
Calculus

**OBJECTIVES**

Learning objectives

The student will be able to program and use the main analytics and actuarial calculation languages and tools

Learning outcomes

- a) Understanding an object-oriented programming language environment
- b) Master the development of actuarial calculation using functions and subroutines
- c) Design and end-to-end programming of actuarial calculus tools.
- d) Understanding the data base engine language SQL
- e) Understanding the basis of Python programming language as a platform to support various software tools.

Learning skills

- a) Analysis and synthesis
- b) Problem solving approach
- c) Work team player.
- d) Critical reasoning
- e) Written and verbal communication

Link to document

**DESCRIPTION OF CONTENTS: PROGRAMME**

- I. VBA
  - a. Programming environment
  - b. Variables and types. Matrices and arrays. Conditional and loops.
  - c. Functions and Subroutines.
  - d. Design of user forms and interfaces.
  - e. Pseudo-code, use cases and design of applications.
  - f. Advances topics
- II. SQL
  - a. Programming environment
  - b. Main types of query.
- III. Intro to Python.
  - a. Programming environment
  - b. Examples of efficient use of Python

**LEARNING ACTIVITIES AND METHODOLOGY**

TEACHING METHODOLOGY

- I. THEORETICAL CONTENTS
  - a. Classroom interactive work.
  - b. Web based materials and handouts
  - c. Tutorial work.
  - d. Recommended international bibliography.
  - e. Office hours and email interaction.
- II. PRACTICE
  - a. Examples and exercises and previous exams classroom solving.

- b. Daily students' involvement and presentations.
- c. Computer work.
- d. Debates and bringing up different standpoints on topics. Critical thinking.

#### ASSESSMENT SYSTEM

Final exam on practical implementation of programming to numerical analysis and data bases. 90%

Weekly class active involvement in homework explanations. 10%

**% end-of-term-examination:** 90

**% of continuous assessment (assignments, laboratory, practicals...):** 10

#### BASIC BIBLIOGRAPHY

- John Walkenbach Excel 2010. Programación con VBA, Anaya Multimedia.