Advanced knowledge of Spreadsheets

Academic Year: (2020 / 2021) **Review date: 10-09-2020**

Department assigned to the subject: Transversal matters

Coordinating teacher: ALVAREZ RODRIGUEZ, JOSE MARIA

Type: Compulsory ECTS Credits : 1.5

Year : 3 Semester : 2

OBJECTIVES

CORE COMPETENCES

CB2: Students shall be able to apply their knowledge to their work or vocation in a professional manner possessing the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of expertise.

CB3: Students shall be able to gather and interpret relevant data (usually within their area of expertise) to make judgments that include a justification on relevant social, scientific or ethical issues.

GENERAL COMPETENCES

CG13: Knowledge and application of programming techniques, operating systems, databases and computer programs with application in engineering domains.

TRANSVERSAL COMPETENCES

CT3: Students shall be able to organize and plan their work, making the right decisions based on the available information, gathering and interpreting relevant data to make judgments within their area of expertise.

CT4: Motivation and ability to devote themselves to lifelong autonomous learning allowing them to adapt to new situations.

LEARNING OUTCOMES

RA1.1: Knowledge and Understanding. Knowledge and understanding of the scientific and mathematical principles underlying their engineering domain.

RA2.1: Engineering Analysis. The ability to apply their knowledge and understanding to identify, formulate and solve engineering problems using established methods.

RA3.1: Engineering Design. The ability to apply their knowledge and understanding to develop and implement designs that meet specific requirements.

RA4.1: Research and Innovation. The ability to conduct literature reviews, and to use data bases and other sources of information.

RA5.1: Engineering Practice. The ability to select and use appropriate equipment, tools and methods.

RA6.1: Transferable Skills. Function effectively as an individual and as a member of a team.

RA6.5:Transferable Skills. Recognise the need and have the ability to engage in independent, life-long learning.

DESCRIPTION OF CONTENTS: PROGRAMME

Teaching Unit 1: A first contact

1.1-Structure of a spreadsheet: book, sheets and cells.and basic operations
1.2-Working with cells and sheets, data import and references.

1.3-Task automation for this unit

Teaching unit TU2: Building, understanding and exploiting data.
2.1-Formula and functions
Boolean operators and functions
Text
Database
Descriptive statistics
2.2-Tables and pivot tables
2.3-Data analysis
2.4-Task automation for this unit

Teaching unit TU3: Representation of data and information, task automation and applications

3.1-Visualization (pivot charts)
3.2-Spreadsheet applications: forms, mail merge, printing, document generation, etc.
3.3-Task automation for this unit

LEARNING ACTIVITIES AND METHODOLOGY

Requirements:
-Excel 2013 or higher (Office 365 provided by the University would be recommended). Spanish or English language version, depending on the language of the enrollment group.
-To do exercises, a personal computer can be used or you can also connect to the virtual classroom service provided by UC3M.

LEARNING ACTIVITIES
Theoretical Lectures:
- Show foundations and main concepts

Practical Lectures:
- Exercise resolution
- General tutoring

Team Work:
- Final case development
- Exercises

Individual Work:
- Exercises
- Contribution to team project
- Study and preparation of final exam

ASSESSMENT SYSTEM

CONTINUOUS EVALUATION (100%)

- Final case development (including a partial delivery): 40%
- 1 minute quizz: 10%
- Final exam: 50%

A minimum grade of 5.0 both in the final case development and in the final examination is required to pass the course.

Final case development:

-Development of a case to cover the life-cycle of a data analysis process for this degree: data loading, analysis, visualization and document generation.

% end-of-term-examination:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

BASIC BIBLIOGRAPHY

- Conrad Carlberg Predictive Analytics: Microsoft Excel, Que Publishing, 2012
- John Walkenbach Excel 2016 Bible, Willey, 2016

- Matthew MacDonald. Excel 2010: The Missing Manual. , O'Reilly, 2010

ADDITIONAL BIBLIOGRAPHY

- Cole Nussbaumer Knaflic Storytelling with Data: A Data Visualization Guide for Business Professionals, Willey, 2015

- Jordan Goldmeier Advanced Excel Essentials, APress, 2015

- Jordan Goldmeier Dashboards for Excel, APress, 2015