

Academic Year: (2023 / 2024)

Review date: 03-04-2023

Department assigned to the subject: Transversal matters

Coordinating teacher: VELASCO DE DIEGO, MANUEL

Type: Compulsory ECTS Credits : 1.5

Year : 3 Semester : 2

SKILLS AND LEARNING OUTCOMES

CB2. Students are able to apply their knowledge to their work or vocation in a professional manner and possess the competences usually demonstrated through the development and defence of arguments and problem solving within their field of study.

CB3. Students have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgements which include reflection on relevant social, scientific or ethical issues.

CT3. Ability to organize and plan work, making appropriate decisions based on available information, gathering and interpreting relevant data to make sound judgement within the study area

CT4. Motivation and ability to commit to lifelong autonomous learning to enable graduates to adapt to any new situation

RA2. Engineering Analysis: To be able to identify engineering problems within the industrial field, recognise specifications, establish different resolution methods and select the most appropriate one for their solution

RA3. Engineering Design: To be able to design industrial products that comply with the required specifications, collaborating with professionals in related technologies within multidisciplinary teams.

RA4. Research and Innovation: To be able to use appropriate methods to carry out research and make innovative contributions in the field of Industrial Engineering.

RA5. Engineering Applications: To be able to apply their knowledge and understanding to solve problems and design devices or processes in the field of industrial engineering in accordance with criteria of cost, quality, safety, efficiency and respect for the environment.

RA6. Transversal Skills: To have the necessary skills for the practice of engineering in today's society.

OBJECTIVES

The main objective of this course is to be equipped with the proper skills to apply spreadsheet tools for providing practical solutions through the automation of tasks and data lifecycle management (load, clean, reconcile and exploit using different techniques depending on the problem specification).

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

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THEORETICAL-PRACTICAL CLASSES. [12 hours with 100% classroom instruction, 0.48 ECTS]

Knowledge and concepts students must acquire. Student receive course notes and will have basic reference texts to facilitate following the classes and carrying out follow up work. Students partake in exercises to resolve practical problems and participate in workshops and evaluation tests, all geared towards acquiring the necessary capabilities.

TUTORING SESSIONS. [1 hours of tutoring with 100% on-site attendance, 0.08 ECTS]

Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher.

STUDENT INDIVIDUAL WORK OR GROUP WORK [24,5 hours with 0 % on-site, 0.98 ECTS]

METHODOLOGY

THEORY CLASS. 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.

PRACTICAL CLASS. Resolution of practical cases and problems, posed by the teacher, and carried out individually or in a group.

TUTORING SESSIONS. Individualized attendance (individual tutoring sessions) or in-group (group tutoring sessions) for students with a teacher as tutor.

Additional note about software resources:

-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.

ASSESSMENT SYSTEM

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

TOTAL CONTINUOUS ASSESSMENT [100%]

Due to the applied nature or special characteristics of the subject, the evaluation is of papers, projects, presentations, exercises, internships and workshops throughout the course. Represents 100% of the final grade, thus evaluation is not possible with a final exam.

- Final case development (teamwork, including a partial delivery): 40%
- 1 minute quizz: 10%
- Individual practical exercise: 50%

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

THERE IS NOT an extraordinary exam. Ordinary exam is just the continuous evaluation process referred

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

previously.

It is recalled that, in accordance with current regulations, each enrollment in cross-curricular subjects, such as this case, will involve a single call and, in those cases in which the continuous evaluation process includes some test, this must be carried out during the schedule and in the classroom reserved for classes, since these transversal subjects will not have a reserved date in the official exam calendars.

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, 2014
- Jordan Goldmeier Dashboards for Excel, APress, 2015

BASIC ELECTRONIC RESOURCES

- Delft University . Aprende a efectuar análisis de datos usando Excel: https://www.edx.org/es/professional-certificate/delftx-analisis-y-visualizacion-de-datos-con-excel?index=spanish_product&queryID=63f9eb802c0d10329c10eeb503c5c317&position=10
- Microsoft . MSEXcel videos: <https://support.microsoft.com/en-us/office/excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb>