Course guide

295911 - EDAN - Data Engineering and a Business Analytics

Unit in charge: Barcelona East School of Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: BACHELOR’S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR’S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR’S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR’S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR’S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR’S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2022  ECTS Credits: 6.0  Languages: Catalan

LECTURER

Coordinating lecturer: JUAN MARTINEZ SANCHEZ
Others: JUAN MARTINEZ SANCHEZ

PRIOR SKILLS

Interest in business management and strategy, big data and data analysis.
Have passed the statistics course. Students must be able to read the bibliography in English, although some parts of the material will be given exclusively in Catalan.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEB-03. Understand the basics behind the use and programming of PCs, operating systems, databases and software with applications in engineering.
CEI-17. Understand the applications of business organisation.

Transversal:
01 EIN N1. ENTREPRENEURSHIP AND INNOVATION - Level 1. Showing enterprise, acquiring basic knowledge about organizations and becoming familiar with the tools and techniques for generating ideas and managing organizations that make it possible to solve known problems and create opportunities.
06 URI N1. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

TEACHING METHODOLOGY

This course alternates theoretical presentations with individual exercises and a team project. You need a minimally up-to-date computer to install the free KNIME software (https://www.knime.com/downloads/download-knime)

LEARNING OBJECTIVES OF THE SUBJECT

The objectives of this course are to know the main concepts of data science and to make an introduction to its application to business management, marketing and innovation and decision making to achieve a competitive advantage.
Learn how to apply basic machine learning tools to business problems using high-level KNIME visual programming software that is workflow-based and requires no code writing.
STUDY LOAD

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<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Hours large group</td>
<td>45,0</td>
<td>30.00</td>
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<tr>
<td>Hours small group</td>
<td>15,0</td>
<td>10.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
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Total learning time: 150 h

CONTENTS

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Description:
1 - Introduction to data science applied to decision making in business management and main technological solutions used.
2 - Introduction to KNIME. Visual programming software based on workflows.
3 - Basic Machine Learning with KNIME and business applications.
4 - Analysis of text, social networks and web pages, applied to business decision making
5 - Management of data analysis projects in the company and preparation of reports.

Specific objectives:
Learn how to manage data analysis projects as a data capture tool and learn about KNIME as a high-level data analysis software and how it integrates with other solutions such as R or python

Full-or-part-time: 150h
Theory classes: 45h
Practical classes: 15h
Self study: 90h

GRADING SYSTEM

The grade of the course is obtained through the arithmetic mean of the following grades that all have equal weight
• Partial Exam 1 (25%)
• Exercise group 1 (25%)
• Exercise group 2 (25%)
• Partial Exam 2 (25%)

There is no reevaluation exam in this course

BIBLIOGRAPHY

Basic:

RESOURCES

Other resources:
Notes distributed at ATENEA in CATALAN.