



Course guides

295911 - EDAN - Data Engineering and a Business Analytics

Last modified: 08/07/2021

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: 2021 **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.

REQUIREMENTS

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

Type	Hours	Percentage
Hours large group	45,0	30.00
Hours small group	15,0	10.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

title english

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:

- Melcher, Kathrin ; Silipo, Rosaria. Codeless Deep Learning with KNIME. Birmingham: Packt Publishing Ltd., 2020. ISBN 9781800566613.
- Vijay Kotu, Bala Deshpande. Data science : concepts and practice. Second edition. Amsterdam: Morgan Kaufmann, 2018. ISBN 9780128147610.
- Marr, Bernard. Big data en la práctica : cómo 45 empresas exitosas han utilizado análisis de big data para ofrecer resultados extraordinarios. Zaragoza: TEEL, 2017. ISBN 9788416511167.
- Silipo, Rosaria; Prinz, Jeanette. KNIME Beginner's Luck. Switzerland: KNIME Press, 2020. ISBN 9783033028500.
- Silipo, Rosaria; Prinz, Jeanette. KNIME Advanced Luck. Switzerland: KNIME Press, 2019. ISBN 9783952392607.

RESOURCES

Other resources:

Notes distributed at ATENEA in CATALAN.