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| Course Unit | Business Intelligence | | Field of study | Information Systems | |
| Bachelor in | Management Informatics | | School | School of Technology and Management | |
| Academic Year | 2022/2023 | Year of study | 3 | Level | 1-3 |
| Type | Semestral | Semester | 1 | ECTS credits | 6.0 |
| Code | 9186-709-3101-00-22 | | | | |
| Workload (hours) | 162 | Contact hours | T - | TP 60 | PL - |
| | | | TC - | S - | E - |
| | | | OT - | O - | |

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) José Luís Padrão Exposto, Joao Paulo Baptista Pereira

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Understand the Business Intelligence process and the factors that can contribute to success of the organizations
2. To know the main enterprise applications of Business Intelligence / Data Warehouses
3. Identify the main indicators of the analytic applications
4. To know the main approaches for the DW construction
5. Understand the relation between Business Intelligence and Data Warehousing
6. Understand the role of the analytic applications and visualization tools
7. To know the main components of the Business Intelligence architecture – people, process and technologies
8. Understand the importance of Data Mining

Prerequisites

Not applicable

Course contents

Decision Support Systems and Business Intelligence; Components of a Business Intelligence system; Data Warehouses; Enterprise applications for Business Intelligence / Data Warehouses; Data Mining; Text and Web Mining; and Big Data and Analytics

Course contents (extended version)

1. Decision Support Systems and Business Intelligence
 - Features, components; architecture and functionality of Decision Support Systems;
 - Features: benefits; obstacles/limitations of Business Intelligence systems;
 - Decision Support Systems vs Business Intelligence
 - Business Intelligence tools
 - Business Analytics
2. Components of a Business Intelligence system
 - Architecture of a Business Intelligence system
 - Key components of the Business Intelligence architecture
 - The Extract, Transform and Load (ETL) processes
3. Data Warehouse
 - Main features
 - Data Warehouse structures
 - Data Warehouse data models
 - Multidimensional model
 - OLAP Systems (Online Analytical Processing)
 - Data Warehouse application áreas
4. Enterprise applications for Business Intelligence / Data Warehouses
 - PowerBI
5. Data Mining
 - Main features
 - KDD (Knowledge-Discovery in Databases)
 - Data Mining Techniques
6. Text and Web Mining
 - Text Mining concepts and examples
 - Web Mining Concepts and Examples
 - Web Mining Categories: Web Content, Structure, and Usage Mining
7. Big Data and Analytics
 - Big Data Concept
 - Big Data Types
 - Tools
 - Big Data vs Traditional Data

Recommended reading

1. Santos, Maribel Yasmina and Ramos, Isabel. Business Intelligence - Da Informação ao Conhecimento. FCA 2017.
2. Carvalho, Adelaide. Exercícios de Power BI - Importação, Edição e Visualização de Dados. FCA 2017.
3. Grossmann, Wilfried, and Stefanie Rinderle-Ma. Fundamentals of business intelligence. Springer, 2015
4. Ramesh Sharda, Dursan Delen, Turban, Efraim, Business Intelligence: A Managerial Perspective on Analytics (3/E). Pearson, 2014.
5. Garner, Godfrey and McGlynn, Patrick, Intelligence Analysis Fundamentals, CRC, 2018.

Teaching and learning methods

It is intended that students develop skills through the accompanied resolution of problems and examples of application, as the theoretical frameworks of the various models are exposed. Out of classes students will have to develop a project where they apply the main techniques acquired during the semester.

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
 - Practical Work - 50%
 - Final Written Exam - 50% (Minimum grade for the written exam: 7 points)

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

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| José Luís Padrão Exposto | Tiago Miguel Ferreira Guimaraes Pedrosa | José Carlos Rufino Amaro | Paulo Alexandre Vara Alves |
| 13-10-2022 | 17-10-2022 | 17-10-2022 | 24-10-2022 |