

Course Unit	Databases I	Field of study	Information Systems
Bachelor in	Informatics and Communications	School	School of Public Management, Communication and Tourism
Academic Year	2022/2023	Year of study	1
Type	Semestral	Semester	2
Level	1-1	ECTS credits	6.0
Code	9188-320-1201-00-22		
Workload (hours)	162	Contact hours	T - TP 30 PL 30 TC - S - E - OT 20 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) **Elisabete da Anunciacao Paulo Morais**

Learning outcomes and competences

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

1. Know all the components of a Database Management System.
2. Realize various techniques for Data Normalization.
3. Develop relational Database Projects.
4. Use SQL (Structured Query Language) to make queries.
5. Create tables, forms, queries, reports, macros and modules in MS Access.

Prerequisites

Before the course unit the learner is expected to be able to:
Not applicable

Course contents

Database System Management; Design of Relational Databases; Relational Algebra; SQL language; Microsoft Access.

Course contents (extended version)

1. Database Management Systems:
 - Characteristics of a DBMS
 - Requirements for a DBMS
 - Components of a DBMS
 - Users of a DBMS
2. Database Design
 - Standardization
 - Functional dependencies
 - Normal Forms
 - Entity-Relationship Diagram
3. Relational Algebra
4. SQL Language
 - Select
 - Order by
 - Join
 - Aggregation Functions
 - Group by
 - Operators
 - Subqueries
 - Data Manipulation (Insert, Update and Delete)
 - Tables Creation and manipulation (Create Database, Create Table, Drop Database, Drop Table)
 - Views
5. Microsoft Access: Tables, Forms, Queries, Reports, Pages, Macros and Modules (VBA)

Recommended reading

1. DAMAS, L. (2017). SQL. 14ª Edição Atualizada e Aumentada. FCA – Editora de Informática. ISBN 978-972-722-829-4.
2. KORTH, H. F. ; SILBERSCHATZ, A. (2007). Sistemas de Bancos de Dados. Editora Makron. ISBN 0-07-044754-3.
3. MORAIS, E. P. (2022). Sebenta de Bases de Dados. EsACT.
4. PEREIRA, J. L. (1998). Tecnologia de Bases de Dados, 3ª edição. FCA – Editora de Informática. ISBN 972-722-143-2.
5. SOUSA, S. (2012). Domine a 110% : Access 2010, 2ª edição. FCA – Editora de Informática. ISBN 978-972-722-707-5.

Teaching and learning methods

This unit will be taught through theoretical/practical lessons (always with the theoretical framework and then practical examples/exercises).

Assessment methods

1. Distributed evaluation - (Regular, Student Worker) (Final, Supplementary, Special)
 - Practical Work - 50% (Minimum grade 8 values.)
 - Final Written Exam - 50% (Minimum grade 8 values.)
2. Incoming and Outgoing students - (Regular, Student Worker) (Final, Supplementary, Special)
 - Practical Work - 100%

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

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24-02-2023	26-04-2023	28-04-2023	02-05-2023