Course Unit	Databases II				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	2		Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	1		Code	9188-320-2101-00-22		

Workload (hours)	162	Contact hours	T	-	TP	40	PL	20	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. Modeling databases using object oriented models and implement them.
2. Acquire fundamental concepts of Distributed Databases.

Prerequisites

Before the course unit the learner is expected to be able to:
Relational Databases Concepts and SQL language

Course contents

Modeling and project object oriented: Modeling of Objects, Object Model versus Relational Model. Concepts of Distributed Databases: Centralized System, Client / Server Architecture, Distributed Architecture , Distributed architecture based on Internet, Parallel Architecture. Data Replication. Data Fragmentation. Characteristics of a distributed database. Design of Distributed Databases. DDB heterogeneous. Management of DDB. Installation and configuration of DBMS.

Course contents (extended version)

1. Modeling and project object oriented:
   - Modeling
   - Abstraction
   - Models object oriented
   - Characteristics of objects
   - Development of OO
   - Modeling Objects
   - Objects, classes, links, associations, operations and methods
   - Generalization, Inheritance and Multiple Inheritance
   - Groupings-Aggregation
   - Object Model versus Relational Model
2. Concepts of Distributed Databases
   - Centralized System
   - Architecture Client / Server
   - Distributed Architecture
   - Distributed architecture based on Internet
   - Parallel Architecture
   - Data Fragmentation and data replication
3. Characteristics of a Distributed Database
4. Design of Distributed Databases
5. Processing and optimization queries
6. Heterogeneous Distributed Databases
7. Management Distributed Databases
8. Installation, configuration and implementation of administrative tasks on DBMSs
   - Creation of store procedures
   - Creation of triggers
   - Users management
   - Roles Creation

Recommended reading

1. Rosa, A. (2018). SQL Server 2016, Curso Completo. Lisboa: FCA – Editora de Informática. [ISBN: 978-972-722-886-7]
2. Damas, L. (2017). SQL - 14ª Edição Actualizada e Aumentada. Lisboa: FCA – Editora de Informática. [ISBN: 978-972-722-829-4]
3. Pereira, J. L. (1998). Tecnologia de Bases de Dados (3ª edição). Lisboa: FCA – Editora de Informática. [ISBN: 972-722-143-2]
4. Nunes, M. e O'Neill, H. (2004). Fundamental de UML 3ª Edição Actualizada e Aumentada. Lisboa: FCA – Editora de Informática. 978-972-722-481-4
5. Ramos, P. (2007). Desenhar Bases de Dados com UML (2ª edição). Lisboa: Edições silabo. [ISBN 978-972-618-474-4]

Teaching and learning methods

This course is taught through theoretical and practical classes (there is always the theoretical framework and then examples / exercises), and if this is conducive, it can be turned into lessons for monitoring the practical work.

Assessment methods

1. Distributed assessment - (Regular, Student Worker) (Final, Supplementary, Special)
   - Practical Work - 50% (Minimum grade seven values.)
   - Final Written Exam - 50% (Minimum grade seven values.)
2. Continuos assessment - (Regular, Student Worker) (Final, Supplementary)
   - Practical Work - 50% (Minimum grade seven values.)
   - Intermediate Written Test - 20% (Minimum grade seven values.)
   - Intermediate Written Test - 20% (Minimum grade seven values.)
   - Development Topics - 10%
3. Mobility Studentes - (Regular) (Final, Supplementary, Special)
   - Practical Work - 100%

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

Elisabete da Anunciacao Paulo Morais	Vítor José Domingues Mendonça	Elisabete da Anunciacao Paulo Morais	Luisa Margarida Barata Lopes
03-10-2022	09-10-2022	10-10-2022	13-10-2022