

Description of Course Unit

Master in Informatics and Computing Engineering
Database and Web Applications Laboratory
Instance: 2011/2012

[Institutional page](#)

General Information

Course Unit: Database and Web Applications Laboratory
Code: EIC0085
Programmes: MIEIC, 3º, 122 students (@ 7.2.2012)
Academic Year: 2011/2012
Semester: 2S
Credits: 6
ECTS: 7
Hours/Weeks: 1x2T, 6x3P
Teachers: [João Correia Lopes](#) | [Sérgio Nunes](#)

Teaching Language

Portuguese

Objectives, Skills and Learning Outcomes

Goals

In this course, the students will learn how to design and develop web-based information systems backed by database management systems.

Learning Outcomes

After completing this course, the student will be able to:

1. Elicit the requirements of an information system
2. Identify the actors and their Use Cases
3. Prepare Use Case Diagrams using UML
4. Obtain the Domain Object Model
5. Obtain the Logical Relational Database Schema
6. Validate the relational schema based on functional dependencies

7. Obtain the database Physical Schema
8. Tuning the Logical Relational Schema
9. Explore the database using the Database Management System PostgreSQL
10. Write queries to the database using SQL
11. Implement integrity constraints and triggers
12. Define transactions
13. Define an architecture for handling errors in the data accesses
14. Set privileges of users and user groups
15. Use the programming language PHP and libraries to build the user interface and business logic of the Web Application
16. Obtain the user interface in HTML
17. Set presentation styles using CSS
18. Validate integrity rules on data entry forms through the use of JavaScript
19. Use the JavaScript library jQuery to interact with the document and to make AJAX requests
20. Ensure that Web pages are obtained in accordance with the accessibility and usability standards

Program

1. Development of a Web application supported by a database: requirements gathering, design, modeling, implementation, testing and documentation.
2. General notions of architecture of web applications using client scripting languages (JavaScript) and server (PHP), presentation of the Document Object Model (DOM), use of Ajax framework and APIs for data access.
3. Design of relational databases using data modeling languages (UML), the SQL language and procedural extensions to SQL.
4. Identification and maintenance of business rules: on the interface (JavaScript), on the business logic and in the database (triggers); define transactions.
5. General notions of usability and Web Design.

Main Bibliography

* R. Ramakrishnan, J. Gehrke, *Database Management Systems*, McGRAW-Hill International Editions, 3rd Edition, 2002, ISBN=0-07-246563-8. [Biblioteca](#)

Complementary Bibliography

- Jeffrey D. Ullman, Jennifer Widom, *A First Course in Database Systems*, Prentice-Hall, 2nd Edition, 2001, ISBN=0-13-035300-0. [Biblioteca](#)
- Alberto Rodrigues da Silva, Carlos Videira, *UML — Metodologias e Ferramentas CASE*, 2ª Edição, Volume 1, Centro Atlântico Editora, Maio 2005, ISBN: 989-615-009-5. [Biblioteca](#)
- Russ LinkMiles, Kim LinkHamilton, *Learning UML 2.0*, O'Reilly, 2006, ISBN=978-0-596-00982-3. [Biblioteca](#)
- Jakob Nielsen, *Designing Web Usability: The Practice of Simplicity*, New Riders Publishing, Indianapolis, 2000, ISBN=1-56205-810-X. [Biblioteca](#)

Teaching Procedures

The lectures will be used for presentation of the scripts of the work and representative examples and their discussion, analysis of assessments and brief introductions to the technologies they use.

The practical classes will be used for laboratory project development as a group project with the teacher as a consultant.

Software

- PHP
- PostgreSQL
- Biblioteca Smarty
- Biblioteca jQuery

Keywords

Physical sciences > Computer science > Informatics

Evaluation Type

Distributed evaluation without final exam

Registered evaluation and occupation components

Description	Type	Time (Hours)	Date of conclusion
Attendance (estimated)	Lectures	70	
User Requirements Document (RER)	Laboratory work or fieldwork	27	07/03/2012
Database Specification Report (REBD)	Laboratory work or fieldwork	27	28/03/2012
Architecture Document and Vertical Prototype (RAP)	Laboratory work or fieldwork	27	25/04/2012
Product (P)	Laboratory work or fieldwork	36	30/05/2012
Demonstration (A)	Attendance	5	01/06/2012
Individual Performance (DI)	Attendance	0	01/06/2012
	Total:	192	

Admission to Exams

Minimum required to pass this course: 40% in each practical assignment.

Final grade

Classification = 10% REI + 20% REBD + 20% RAP + 40% PA + 10% DI

Legend:

RER - Requirements Specification Report

REBD - Database Specification Report

RAP - Architecture Report and Vertical Prototype

PA - Product and Presentation

DI - Individual Performance

Marks of any component of assessment may vary from element to element in the same group.

This course, given its laboratory nature is not eligible for evaluation in a single moment, so the practical work evaluation cannot be replaced by taking an exam.

Special Assignments

There are no special works or tests.

Special evaluation (TE, DA, ...)

All students have the same evaluation.

Improvement of Final/Distributed Classification

Students may improve the mark in the subject's next edition.

— JCL, SSN

From:

<https://web.fe.up.pt/~jlopes/> - JCL

Permanent link:

<https://web.fe.up.pt/~jlopes/doku.php/teach/lbaw/201112/description>

Last update: **12/10/2012 19:00**



