

Description of Course Unit

Master in Informatics and Computing Engineering
Database and Web Applications Laboratory
Instance: 2012/2013

[Institutional page](#)

General information

Course Unit: Database and Web Applications Laboratory
Code: EIC0085
Programmes: MIEIC, 3º (104 students, 31.01.2013)
Academic Year: 2012/2013
Semester: 2S
Credits: 7 ECTS
Hours/Weeks: 1x2T, 6x3P
Teachers: [João Correia Lopes](#) | [Sérgio Nunes](#)

Teaching language

Portuguese. Suitable for English-speaking students.

Objectives

BACKGROUND

The unit aims at revisit the learning outcome of databases and web languages and technologies, providing a practical perspective on this core areas of computer engineering.

SPECIFIC OBJECTIVES

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

Skills and learning outcomes

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

- Specify the requirements of the web-based information system;
- Obtain the conceptual model of the information system's domain;

- Obtain and validate the logical relational database schema of the system's database;
- Obtain the physical schema of the database and tune the logical relational schema;
- Design and implement queries to access the database using SQL;
- Design and implement mechanisms for maintaining the integrity of the data;
- Specify the web interfaces and business logic of the information system;
- Implement the web components of the system using PHP, HTML, CSS and JavaScript;
- Ensure that the web interfaces are in accordance with accessibility and usability standards.

Work mode

Classroom.

Previous knowledge

Databases: data modelling with UML, relational model, SQL language.

Web languages and technologies: HTTP protocol, HTML, CSS and JavaScript languages.

Program

- Development of a Web application supported by a database: requirements gathering, design, modeling, implementation and documentation.
- 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.
- Design of relational databases using data modeling languages (UML), the SQL language and procedural extensions to SQL.
- Identification and maintenance of business rules: on the interface (JavaScript), on the business logic and in the database (triggers); define transactions.
- 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, 3rd Edition, 2008, ISBN=978-0-13-600-637-4. [Biblioteca](#)
- Scott Ambler, *The Object Primer*, Cambridge University Press, 3rd Edition, 2004, ISBN: 978-0-521-54018-6 [Biblioteca](#)
- Zalewski, Michal, *The tangled Web: a guide to securing modern Web applications*, No Starch Press, Inc. ed, 2011, ISBN=978-1-59327-388-0. [Biblioteca](#)

- Jakob Nielsen, *Designing Web Usability: The Practice of Simplicity*, New Riders Publishing, Indianapolis, 2000, ISBN=1-56205-810-X. [Biblioteca](#)

Teaching procedures and learning activities

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.

Support 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	11/03/2013
Database Specification Report (REB)	Laboratory work or fieldwork	27	08/04/2013
Architecture Document and Vertical Prototype (RAP)	Laboratory work or fieldwork	27	29/04/2013
Product (P)	Laboratory work or fieldwork	36	03/06/2013
Demonstration (A)	Attendance	5	03/06/2013
Individual Performance (DI)	Attendance	0	
	Total:	192	

Admission to exams

n/a

Final grade

Classification = 15% RER + 20% REB + 15% RAP + 40% PA + 10% DI

Legend:

RER - Requirements Specification Report

REB - 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.

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

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.

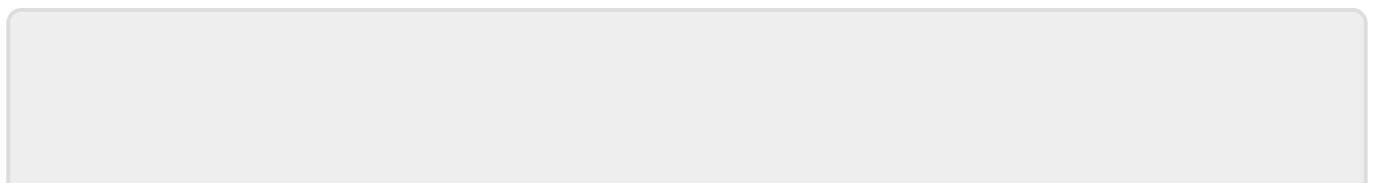
Special evaluation (TE, DA, ...)

All students have the same evaluation.

Improvement of final/distributed classification

Students may improve the mark in the course'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/201213/description>

Last update: **02/09/2013 18:25**

