

Distributed Applications (B-KUL-T46DAP)

4 ECTS English 54 Second term Cannot be taken as part of an examination contract

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OC Elektronica-ICT - Campus Groep T Leuven

Aims

Learning outcomes:

- MI1: Problem analysis and solving
- MI2: Design and / or development
- MP1: To make operational
- MG1: Information gathering and processing
- MG3: Critical thinking

Explanation:

After finishing this course, the student should be able to understand the multi-tier architecture and the concepts of an enterprise wide application. They can develop and deploy a multi-tier application.

The main goal of the coarse is to give an overview of the layers and concept of an enterprise wide application. During the lab sessions the students are challenged to find the information they need to develop their application and deploy it on an Spring Framework (MI1, MI2, MP1, MG1, MG3).

Previous knowledge

Because this course is about web based applications within a Java EE environment, we expect a good knowledge of Java and Internet-applications. Typical you have followed the course Software Development (3rd phase Electronics/ICT) and Web Apps (Master Electronic Engineering, option Internet Computing).

Is included in these courses of study

[Master in de industriële wetenschappen: elektronica-ICT \(Leuven\)](#) (Optie Internet Computing) 60 ects.

[Master of Electronics and ICT Engineering Technology \(Leuven\)](#) (Option Internet Computing) 60 ects.

Activities

2 ECTS. Distributed Applications: Lectures (B-KUL-46hDA)

2 ECTS English Format: Lecture 24 Second term

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Content

This course dicusses each of the layers of an application architecture. We try to use frameworks and programming technologies as up-to-date as possible.

Enterprise applicaties have different layers; each of this layers is responsible for its part of the application. A layer communicates with (some) other layers through well-defined interfaces. This "loosely-coupled" approach supports a flexible architecture, where one can easily deal with every layer seperately. Each of this layers can be run on another computer. Sometimes a layer itself can be run on more than one server; hence the name "distributed".

A typical layered architecture consists of:

- Enterprise Information tier (database, ...)
- ORM (mapping between the database and the domain onjects)
- Business logic tier
- Web tier
- Client(s)

After following this course, a student can participate into development for multi-tiered enterprise wide applications.

These are the possible topics for this course (depending on the timing, opportunity to have guest speakers, ...we take some of these topics):

- Overview, IoC, AOP, security, transactions, ORM (JPA, Hibernate, ...), Web-tier solutions (MVC-frameworks), Web services, ...
- Guest lectures by people from companies

Course material

Slides are available on Toledo. Because of the rapid changing nature of the content of this course, on-line information is heavily used.

Format: more information

Guest lecture - Traditional lecture

2 ects. Distributed Applications: Lab Sessions (B-KUL-46pDA)

2 ECTS  English Format: Practical  30  Second term

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Content

During the lab sessions the technologies explained in the lectures, are used in small exercises to prepare a web application. This application contains a predefined number of technology components.

Course material

Documentation on Internet sites.

Format: more information

During the lab sessions the students work on a small application (groups of 2 to 3 students). This will be presented and discussed during an evaluation moment.

Evaluation

Evaluation: Distributed Applications (B-KUL-T71294)

Type : Partial or continuous assessment with (final) exam during the examination period

Description of evaluation : Written, Project/Product, Presentation

Type of questions : Multiple choice, Open questions

Explanation

If the university decides that it is confronted with situations of general force majeure or situations where the safety and health of members of the academic community of KU Leuven may be endangered and changes to the teaching and evaluation activities occur as a result, these changes will be communicated via Toledo.

1. Calculation of the final mark

The final mark of this course is calculated based on the published component marks with the following weighting factors:

Component mark for Lectures: 55%

Component mark for lab sessions: 45%

The only exception to this rule is described in the complementary regulation of the Faculty of Engineering Technology to article 66 in the Regulations on Education and Examinations (579-rule).

2. Calculation of the published component marks

The component mark for 'Lectures' is a whole number between 0 and 20. It is the result of a written exam.

The component mark for the 'Lab Sessions' is a whole number between 0 and 20, based on a small project. The students present their work, that includes all features discussed during this course. Details about the needed features will be specified on Toledo.

3. Absences

For absences during the teaching weeks, please contact the education ombuds on the first day of your absence. If you missed one or more obligatory sessions, please contact your professor as soon as possible and certainly within a week. For absences within the exam period, please contact the exam ombuds on the first day of your absence.

4. Partial transfers

Component marks of at least 10/20 published in the academic progress file are transferred to the next examination period within the same academic year and to the following academic years, except for temporary marks and marks for intermittent tests.

When needed, additional information on the evaluation activities is provided during the lessons and/or made available on the toledo pages of the course.

Information about retaking exams

This course unit allows partial mark transfers in case of partial pass mark:

- 46hDA - Distributed Applications: Lectures (during and beyond academic year)
- 46pDA - Distributed Applications: Lab Sessions (during and beyond academic year)

Lecture exam: same as in the first/second examination period.

Lab Sessions: students have to work alone on a smaller project; for more details about the practical work, contact the professor in time and as soon as possible after the release of the results.

1 Required in stage	Optional in stage	First term	Second term	Both terms
This year	Next year	Alternating years	External	Prerequisites
Taught by	Language of instruction	Duration		

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