IV1201 Design of Global Applications 7.5 credits

Arkitektur och design av globala applikationer

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for IV1201 valid from Spring 2016

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

- Good knowledge in object-oriented programming.
- Good knowledge in object-oriented design.
- Knowledge of server-side development of Internet-based systems, for example with Java EE or .NET.
- Knowledge of software development processes.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

On completion of the course, you should, based on a given specification, be able to retrieve an architecture and design for an Internet-based system. Your architecture and design shall be implemented in code of production quality and follow established best practices for design, security, persistence and transaction management. You should also be able to critically and systematically evaluate different architectures.

To achieve these aims, you should after the completed course:

- Be able to apply important design principles, such as low coupling, high cohesion and encapsulation, for design of Internet-based applications.
- Be able to implement security (for example authorization and authentication) in Internet-based applications. The implementation shall follow established best practices.
- Be able to implement transactions (for example isolation and demarcation) in Internet-based applications. The implementation shall follow established best practices.
- Be able to implement persistence in Internet-based applications. The implementation shall follow established best practices.
- Be able to document the architecture in a way that makes it easy to understand for other developers.
- Be able to write texts that explain and evaluate both your own architecture and published articles about architecture. The evaluation shall be based on scholarly journals or publications concerning proven engineering experience.
- Be able to critically review other student's texts, based on correctness, relevance and references to scholarly journals or publications concerning proven engineering experience.

Course contents

This is a hands-on course. Focus is on implementing a good architecture in code. The course covers solutions satisfying common non-functional requirements and other common architectural issues in Internet-based systems. The course participants shall understand advantages and disadvantages of covered solutions and be able to implement them in code.

The following areas are covered:

- flexible and robust design
- security
- transactions
- persistance
- performance
- packaging
- error handling

- documentation of the architecture

The following areas are not covered:

- the deployment view of the architecture, that is network topology, hardware, operating systems, choice of application server, etc
- software development processes
- requirement specifications

The course does not cover theories for choosing between different architectures for more or less all kinds of systems. Instead it presents a few common solutions to a specific problem. The problem that is covered is to create an architecture for a system based on business logic and data. Focus is mainly on systems with web based user interfaces.

Examination

- TEN1 - Examination, 1.5 credits, grading scale: P, F
- LAB1 - Assignments, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

The final grade is the grade on LAB1. Both sub courses must be passed before a final grade is given.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.