IV2039 System Integration 7.5 credits

Systemintegration

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

Establishment

Course syllabus for IV2039 valid from Spring 2011

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

120 university credits (hp) in engineering or natural sciences and documented proficiency in English corresponding to English A.

and

Courses in basic computer organization/architecture, Programming in C or Java, algorithms and data structures.Basic knowledge of C-programming.

Language of instruction

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

Intended learning outcomes

System integration is becoming more important in the engineer's every-day work. Today, there is almost no project that does not pose requirements for integration among different information systems. Most of enterprises have, historically, the systems that cannot communicate in a transparent way. Another common need is that an enterprise needs to integrate its systems with other enterprises or organizations.

The aim of this course is to bring in core as well as advanced concepts, methods and techniques needed in solving the problem of system integration. Additionally, the course provides an understanding of the main challenges in system integration nowadays, by giving the students experience in integrating several systems into a single business system.

The aim of this course is to give the student:
- Understanding of system integration from the business perspective
- Capability to model business processes and with UML and BPMN.
- Capability to model business information with XML.
- Understanding of SOA and Web services.
- Knowledge of process-, information- and service- oriented integration methods and techniques.
- Knowledge for creating different integration architectures.
- Knowledge of the common patterns for system integration.
- Capability to analyze the latest scientific contributions within the system integration subject.
- A comprehensive practice in at least one system integration technique, by working in groups.

Since information system integration is a multidisciplinary field and closely related to areas such as information and process modeling, database management, service engineering and design, students from a variety of disciplines can benefit from this course.

Learning goals:

LG1: Understand and describe three core SI perspectives and their relationships.

LG2: Understand how to apply different SI perspectives in a given enterprise context.

LG3: Understand and apply the method and the steps for establishing system integration within single or multiple enterprise context.

LG4: Understand and perform a comprehensive integration task using an integration server and a number of involved tools.

Course contents

The following subjects will be handled during the course:

- Architectures and patterns for system integration.

- Methods for system integration, especially process-, information- and service -oriented.

- Techniques and tools for system integration (BizTalk, Oracle, ERP systems, etc.)

- UML, BPMN

- XML

- SOA, Web services

Course literature

Preliminary:

- Course book:Waseem Roshen: SOA-Based Enterprise Integration, Mc Graw Hill, 2009, 978-0-07-160552-6
- Course compendium
- Lecture slides
- Reading articles

Examination

- ÖVN1 - Exercise, 1.0 credits, grading scale: P, F
- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Written Exam, 3.5 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.

Grade scale: A/B/C/D/E/Fx/F

The course examines through a project, an exercise and a written exam.

The written exam concerns grades F, Fx, E, D, C, B, and A, and for the project and the exercise apply P or F. For the course as a whole applies the grade from the exam and passed project and exercise.

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.