Distributed Systems

Programme course

6 credits

Distribuerade system

TDDD25

Valid from: 2017 Spring semester

Determined by
Board of Studies for Computer Science
and Media Technology

Date determined
2017-01-25

Main field of study
Computer Science and Engineering, Computer Science

Course level
Second cycle

Advancement level
A1X

Course offered for
- Computer Science and Engineering, M Sc in Engineering
- Computer Science, Master's programme
- Electronics Engineering, Master's programme
- Information Technology, M Sc in Engineering
- Computer Science and Software Engineering, M Sc in Engineering

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Concurrent Programming and operating system or Real Time and Concurrent Programming

Intended learning outcomes
The aim of the course is to provide theoretical knowledge, understanding, and practical skills regarding modern distributed systems and the related techniques, algorithms and tools. After completing the course, the students should be able to:
- Identify the essential difficulties and specific problems in designing and implementing a complex distributed system.
- Understand the theoretical aspects at the heart of distributed systems and relate them to the problematic of distributed applications.
- Analyze the requirements of the system and find solutions for various problems, based on a solid theoretical understanding of the area.
- Compare alternative solutions with regard to various parameters and relate to the actual distributed application and its requirements.
- Understand the specific features of certain distributed applications, such as real-time or fault-tolerant systems, and master the adequate solutions.
- Design a distributed application and implement it using the CORBA environment.

Course content
Introduction, models and overall architecture of distributed systems, services and different forms of transparency in distributed systems, communication in distributed systems, distributed heterogeneous applications and CORBA, time and state in distributed systems, distributed mutual exclusion, real-time distributed systems, replication, and fault tolerance.

Teaching and working methods
The course consists of lectures and laboratory assignments.

Examination

LAB1	Laboratory work	2 credits	U, G
TEN1	Written examination	4 credits	U, 3, 4, 5

Grades
Four-grade scale, LiU, U, 3, 4, 5

Department
Institutionen för datavetenskap

Director of Studies or equivalent
Ahmed Rezine

Examiner
Petru Eles

Education components
Preliminary scheduled hours: 40 h
Recommended self-study hours: 120 h

Course literature
George Coulouris, Jean Dollimore, Tim Kindberg: "Distributed Systems - Concepts and Design" 5th Edition, Addison Wesley Publishing Comp., 2011.

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.