DALARNA UNIVERSITY

Course Syllabus

Distributed Computing 7.5 Credits*, First Cycle

Learning Outcomes

The overall goal of the course is that students acquire knowledge and skills in collecting and processing data from a heterogeneous computerised environment including distributed sensor units, clients and servers.

After completing the course, students will be able to:

Knowledge and Understanding

- Describe concepts related to software agents, multi-agent systems, and autonomous and distributed systems
- Describe properties and concepts of distributed and parallel systems.

Skills and Abilities

- Implement software agents with the support of multi-agent frameworks
- Configure, manage and develop applications for computers with limited memory
- Conduct data analysis related to distributed systems
- Apply scientific approaches in the planning, design, implementation and presentation of quantitative studies

Evaluation Ability and Approach

- Argue for selected methods and techniques in artificial intelligence, data science or statistical analysis for problem solving
- Evaluate the results of analysed collected data and suggest improvements

Course Content

The course deals with distributed systems with diffuse components over networks that communicate and coordinate their actions by sending messages to each other. Other types of network and system models are also covered.

In addition, software agents and distributed systems that are realised in the practical programme development components of the course are treated. In this context, methods

and techniques for artificial intelligence (AI) or data analysis are used and implemented by the student.

The course focuses on quantitative methods that are used during the problem-solving process, including planning, data collection, data transformation, data storage, data analysis and presentation.

Assessment
Tests (2 credits), laboratory reports (2.5 credits) and assignments (3 credits).

Forms of Study
Lectures, laboratory work, workshops

Grades
The Swedish grades U–VG.

Tests (U - VG), laboratory reports (U - G) and assignments (U - VG).

The final grade is determined by an overall weighting of the examination components included in the course.

Prerequisites
Artificial intelligence 7,5 credits and Statistical Analysis 7,5 credits or Data Science och Machine Learning 7,5 credits
Object-Oriented Design and Problem-Solving, 7.5 credits
Research Methodology 7.5 credits First Cycle
Database Systems, 7.5 credits First Cycle

Other Information
This course cannot be included in a degree that also includes the course Distribuerad databehandling och problemlösning med Java, IK2018.

Subject:
Information Systems

Group of Subjects:
Informatics/Computer and Systems Sciences

Disciplinary Domain:
Technology, 100%

This course can be included in the following main field(s) of study:

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1. Information Systems
2. Microdata Analysis

Progression Indicator within (each) main field of study:
1. G2F
2. G2F

Approved:
Approved 11 March 2021
Valid from 1 April 2021