DD2425 Robotics and Autonomous Systems 9.0 credits

Robotik och autonoma system

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

Establishment

Course syllabus for DD2425 valid from Autumn 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Single course students: Bachelor of Science degree or equivalent including 45 university credits in Mathematics or Information Technology. Furthermore: English B, or equivalent.

Language of instruction

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

Intended learning outcomes

After completing the course the student should be able to

- design and implement an autonomous robot, including mechanics, computer software and hardware as well as programming
- explain basic concepts and technologies in the broad and interdisciplinary field of robotics
- identify the possibilities and limitations for robot technology of today
- analyze a technical problem holistically
- develop strategies for solving and then solve a problem with limited information and resources
- integrate knowledge from different domains and source for designing and building a complete system
- make decisions based on acquired knowledge
- acquire new knowledge when needed
- assess the quality of his/her own work and that of others
- work, communicate and solve problems in an international project group under pressure
- document and present results, conclusions and arguments supporting these in written and oral form

in order to

- be able to work with autonomous and other complex systems in research and/or development
- become better at planning and executing develop work in project groups.

Course contents

During the course a small, mobile, autonomous robot for performing certain tasks is built. This work is carried out in groups as a project. At the end of the course there is a contest between the robots that the participants have constructed.

The theoretical part of the course deals with fundamental concepts in robotics, kinematics and navigation. The practical part of the course adds hands on experience with sensors, actuators, programming of embedded systems and building of robots.

Course literature

To be announced at least 4 weeks before course start at course web page.

Examination

- PRO1 - Project, 5.5 credits, grading scale: P, F

- TEN1 - Exam, 3.0 credits, grading scale: P, F
- LAB1 - Laboratory Works, 0.5 credits, grading scale: P, 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.

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK.

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.