DD2410 Introduction to Robotics 7.5 credits

Introduktion till robotik

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

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

Establishment

Course syllabus for DD2410 valid from Autumn 2018

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

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 be able to:
â€¢ Use basic theoretical tools from robotics to describe and calculate kinematics and dynamics for robot systems with several degrees of freedom
â€¢ Implement control systems for simple robotic applications
â€¢ Know and apply algorithms to generate plans of motion
â€¢ Use modern software architecture to develop robotic applications
â€¢ Summarise the included subject areas of robotics
â€¢ Account for different types of hard and software that is used in robot systems
In order to:
â€¢ Be able to participate in development and implementation of simple robot systems
â€¢ Obtain a good basis for continued studies in robotics and related subjects

Course contents

Kinematics and dynamics for mobile and articulated robots. Description models applicable for robot system, such as Denavit-Hartenberg notation, homogeneous transforms etc
Sensors, actuators and other robot hardware
Algorithms for calculation of inverse kinematics, robot dynamics, trajectories and planning.
Software architectures for robot systems and simulators

Course literature

Will be announced on the course web no later than 10 weeks before the start of the course.

Examination

- LAB1 - Laboratory assignments, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written examination, 2.5 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.

Laboratory assignments (LAB1) and examination (TEN1).
In this course, the code of honour at the School of Computer Science and Communication is applied, see: http://www.kth.se/en/csc/utbildning/hederskodex
If special circumstances apply, other examination format can be used

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.