

FFR125, Autonomous Agents

Quarters III-IV, 2016

Lecturer (3rd quarter) and examiner:

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Course web page:

<http://www.me.chalmers.se/~mwahde/courses/aa/2016/aa.html>

Lectures - times and locations:

3rd quarter

Monday	10.00-11.45	Room KB
Thursday	08.00-09.45	Room KC

4th quarter

Monday	13.15-17.00	ET-lab
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Note: The ET lab is located in the Physics building ("Forskarhuset").

Literature:

The literature (for the 3rd quarter) will consist of lecture notes as well as scientific papers taken from the robotics literature. The lecture notes are available on the course web page.

Examination:

The examination consists of three parts:

- Home problems (two sets, maximum score: 25p),
- An exam at the end of the (note!) *third* quarter (maximum score: 25p).
- One or several robotics projects that must be completed successfully by each group of students. The robotics projects will be carried out in the fourth quarter.

Note: Students must participate both in the 3rd and 4th quarters in order to complete the course!

Grading:

The requirements for the various grades are as follows:

Chalmers:

- 5: Total score in [42, 50]
- 4: Total score in [33, 41.5]
- 3: Total score < 33

GU:

- VG: Total score in [39, 50]
- G: Total score < 39

Note also the additional requirements that (1) a minimum score of 10p must be obtained on the exam; (2) the mandatory home problems must be solved successfully.

Preliminary program (Lecture times and locations: see above)

Note: Theory and simulations will be covered in the 3rd quarter. Robot construction and use will be the topic of the 4th quarter.

Date	Time	Room	Contents
20160118	08.00-09.45	HB3	Course introduction and motivation
20160121	08.00-09.45	KC	Autonomous robots: Background and introduction. Sensors, actuators, and processors, pp. 1-20
20160125	10.00-11.45	KB	Kinematics and dynamics of wheeled robots, pp. 21-28
20160128	08.00-09.45	KC	Simulation of autonomous robots, pp. 29-44
20160201	10.00-11.45	KB	Animal behavior: Lessons for robotics, pp. 45-54. Handout of home problem 1
20160204	08.00-09.45	KC	Approaches to robot intelligence. Basic robotic brain processes, pp. 55-66
20160208	10.00-11.45	KB	Robotic behaviors I. Exploration and navigation (1), pp. 67-77
20160211	08.00-09.45	KC	Robotic behaviors II. Exploration and navigation (2), pp. 77-84. Deadline for home problem 1
20160215	10.00-11.45	KB	Robotic behaviors III. Localization, pp. 85-92. Handout of home problem 2
20160218			No lecture
20160222	10.00-11.45	KB	Behavioral economics: The concept of utility, pp. 93-104.
20160225	08.00-09.45	KC	Decision-making in autonomous robots, pp. 105-112
20160229	10.00-11.45	KB	Applications: Autonomous vehicles, software agents, financial agents etc.
20160303			No lecture
20160307	10.00-11.45	KB	Course summary
20160310	08.00-09.45	KC	Introduction to the robotics projects (4th quarter)