FFR125, FIM760
Autonomous agents

LP III-IV, 2008

Reading guidance 2008-01-25:

Literature:

1. **Wahde, M.:** *An introduction to autonomous robots* (lecture notes). [**MW**]

2. **Xie, M. --** *Fundamentals of robotics - linking perception to action.* [**MX**]

3. Various scientific papers (web links or printouts will be made available during the course).

Lecture 2:Kinematics, dynamics, and sensors of autonomous robots:

MW p. 2-19:

- 1.1 Robotic hardware
  - 1.1.1 Sensors; *important*
  - 1.1.2 Actuators; *important*
  - 1.1.3 Microcontrollers; *briefly*
  - 1.1.4 Human-robot interaction; *briefly*
- 1.2 Kinematics; *important*
  - 1.2.1 The differential drive; *important*
- 1.3 Dynamics; *important*
- 1.4 Localization; *briefly*
  - 1.4.1 Dead reckoning; *important*

MX p. 115-143 (4.1 and 4.2 is mainly included as a repetition of basic mechanics):

- 4.1 Introduction; *briefly*
- 4.2 Origin of a rigid body's motion; *briefly*

4.2.1 Energy conservation in a system; *briefly*
4.2.2 Forces; *briefly*
4.2.3 Torques; *briefly*
4.2.4 Dynamic pairs and chains; *briefly*
4.2.5 Icremental works; *briefly*
4.2.6 Potential energy; *briefly*
4.2.7 Kinetic energy; *briefly*
4.2.8 Origin of motions; *briefly*

4.3 Actuation elements; *important*

4.3.1 Force and torque generators; *important,*
Note in particular 4.3.1.3 Brush-type DC motors!
4.3.2 Force and torque amplifiers; *important (but skip 4.3.2.3)*
