

Robots Modeling and Identification

Course Workload		Assessment form (examination/ graded test/ ungraded test)
ECTS	Hours	
3	108	Exam

The course is aimed at studying approaches to robot modeling and identification. The course content covers the basic concepts, definitions and approaches to deriving mathematical models of robots, including sections on kinematics and dynamics. Attention is paid to the problem of parameterization and identification of dynamic models of robotic systems. The course contains laboratory work on solving kinematics problems, constructing and identification of dynamic models of robots.

Course structure:

1. Robot kinematics

- 1.1. Forward position kinematics
- 1.2. Inverse position kinematics
- 1.3. Velocity kinematics
- 1.4. Introduction to robot modeling and identification

2. Robot dynamics and identification

- 2.1. Principles and laws of motion of a material point and an absolutely rigid body
 - 2.2. Euler-Lagrange and Newton-Euler methods
 - 2.3. Special cases of dynamic robot models
 - 2.4. Parameterization and identification of dynamic models of robots
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