Robot Engineering

Special Subjects
Elective 2 credit

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1. Course Description

In this course, students will learn the basics of robotics: mechanism, kinematics, and dynamics. In addition, the latest robots will be introduced (Related to DP1).

2. Course Objectives

The aim of this course is to learn the technologies of robotics, particularly kinematics and dynamics.

3. Grading Policy

Grading is determined comprehensively with the final examination (or report).

4. Textbook and Reference

5. Requirements(Assignments)

Teaching materials will be shown on LMS. Student must prepare for next lecture by it (1.5 hours).

6. Note

7. Schedule

[1] Introduction
[2] Kinematics: Mechanism of robot arm
[3] Kinematics: Coordinate transformation
[4] Kinematics: Link coordinate system
[5] Kinematics: Forward kinematics
[6] Kinematics: Jacobian matrix
[7] Kinematics: Singularity of a manipulator
[8] Statics
[9] Dynamics: Newton-Euler method
[10] Dynamics: Lagrangian method
[11] Dynamics Simulation
[12] Control: Modeling
[13] Control: Transfer Function
[14] Control: Feedback control
[15] Summary lecture