

# Homework Assignment 1

## Tasks:

1. Develop kinematic model of the robot.
2. Solve forward kinematics problem.
3. Solve inverse kinematics problem.
4. Upload your project to github.
5. Write a report.

## Requirements:

1. Use Matlab / Python for implementation.
2. Both FK and IK should be implemented as distinct files.
3. IK function should take into account singularities, workspace limits and possibility of multiple solutions.
4. You code should contain file with example of the usage of FK and IK functions.
5. You code should contain file with tests.
6. Report should be of following structure:
  - Description of the robot.
  - Kinematic scheme with description of the parameters.
  - Formulas of forward kinematics solution.
  - Step by step explanation of inverse kinematics solution.
  - Link to the project on github.

## Robots:

1. FANUC R-2000iC/165F.
2. KUKA KR 10 R1100-2.
3. KUKA LBR iiwa 14 R820 (fix third joint for simplification).
4. AR601 arm.
5. AR601 leg.