

Lab test

Given the DGM, DH parameters, Inverse Kinematics, Jacobians, and the Dynamic model of a robot, and a desired starting and ending end-effector pose

- ▶ Calculate the joint positions to achieve the two poses
- ▶ Calculate the intermediary poses
- ▶ Calculate the joint trajectories to move from one pose to the other
- ▶ Simulate the Robot motion in open loop
- ▶ Build independent joint control for controlling for the desired trajectory
- ▶ Control the speed that the trajectory is followed

You can use either simulink or matlab (robotics toolbox is encouraged).

Exam

Sample questions:

- ▶ Give a robotic structure, calculate its DH parameters
- ▶ Given a robotic structure, calculate the DGM
- ▶ Given a robotic structure and the DGM, calculate the Inverse kinematics
- ▶ Given the Jacobian and joint velocities, calculate the end effector velocity
- ▶ Given the Lagrangian, calculate the dynamic model of a robot