

MEI-24026 Robot modelling, control and programming - 18.2.2015

1.
 - a. What is singularity? How to find it?
 - b. What is the difference between path and trajectory?
 - c. Define forward and inverse dynamics.
2. $\theta_0 = 0$, $\theta_f = 80$, time = 4. Use cubic equations to calculate and sketch robot's position, velocity and acceleration.
3.
 - a. Describe and design RPR robot.
 - b. Draw joint axes.
 - c. DH-table
 - d. Use MatLab commands Link and SerialLink to build it
 - e. What is the final position (X,Y,Z) of the end effector when joint variables are $[\pi/2 \ 1 \ 0]$
4. Solve M, V and G from given State-space equations
5. What is the difference between artificial and natural constraints?