

Robotics 2 – Midterm Review

Motors: Three different power sources used in robotics technology: electric, hydraulic and pneumatic

Gears

Be able to calculate final gear ratio for compound gear

Kinematics – week 6

Manipulators – links, joints – be able to define

Revolute or Prismatic (be able to identify)

Drive power and benefits plus drawbacks of using these – electric, hydraulic, pneumatic

Degrees of freedom – identify how many a manipulator has

Industrial robot geometries – polar, cylindrical, Cartesian, jointed arm (the CRS robot in the lab is this type)

Robot Arm Specs and Selection – be able to identify specs, how to select it

Workspace or Work Envelope – what is it, given a manipulator drawing, sketch the work envelope

What is forward and inverse kinematics? What variables are you given in each ?

Identify equation used in a simple two link Cartesian coordinates robot arm

Manipulator Path Control – week 7

What are some of the applications for industrial robot arms?

Be able to identify the three common manipulator path motions: slew motion, joint interpolation, straight-line interpolation, circular interpolation

Define and identify the different kinds of path control type: limited sequence, point to point, continuous path, controlled path

What are the advantage and disadvantages of the following robot arm geometries: rectangular, spherical, cylindrical, jointed-arm (vertical and horizontal)

Robot Cell Layout, Motors– Week 8

Learn and be able to describe and identify aspects of the following robot work cell layouts: robot- centered, in-line (also the 3 types of part transport systems), mobile

Work Cell Control – learn what it once does:: What is sequence control, operator interface, safety monitoring