

The goal of this assignment is to develop your understanding of the KUKA Robot and its functionality by utilizing RoboDK. Through the use of RoboDK, you can work in parallel with the KUKA Robot. This workflow is approachable and will enhance your ability to navigate a maze path and program the robot effectively to do so. Additionally, you

will learn how to import 3D parts and curves from Rhino to RoboDK through the use of the RoboDK Rhino plug-in. This plug-in allows for a stream-lined workflow within a software you have familiarity with and can be built upon in the future within grasshopper using KUKA PRC. In this assignment, you will need **Rhino**, **RoboDK**, and **RoboDK plug-in**.

**Step 01:** Download and Install RoboDK. <https://roboDK.com/download>.

**Step 02:** Download and Install RoboDK plug-in Rhino. <https://roboDK.com/doc/en/PlugIn-Rhino.html>.

**Step 03:** Download two files: **"M6A4\_WORKCELL\_Maze-2023.stl"** and **"M6A4\_WORKCELL\_Maze-2023.3dm"** from **\*insert link\***

**Step 04:** Open the **"M6A4\_WORKCELL\_Maze-2023.3dm"** file you just downloaded in Rhino and check for the RoboDK toolbar. \*If you do not see RoboDK in your toolbar go to Main Menu> Tools> Toolbar Layout> Select RoboDK and then check the box below to add it. It will appear somewhere on your screen and simply need to drag it to your toolbar to add.\*

**Step 05:** Launch RoboDK and drag and drop the **"M6A4\_WORKCELL\_Maze-2023.stl"** file into the RoboDK work environment. If it does not work check in the Rhino RoboDK toolbar plug-in and click **"Settings"** then go to the **"Object Export Options"** and select **"STL"** in the drop down menu and click **"OK"**.

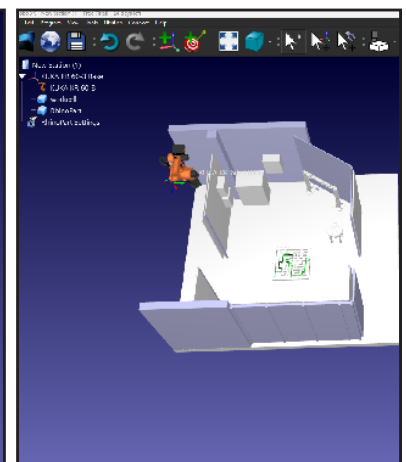
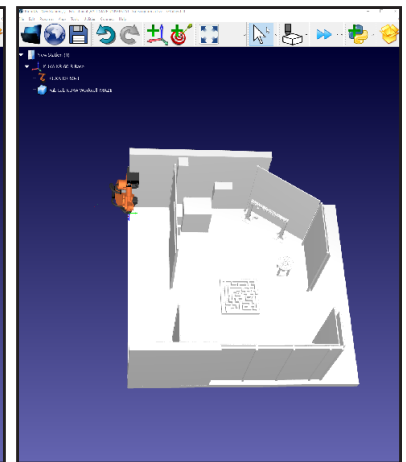
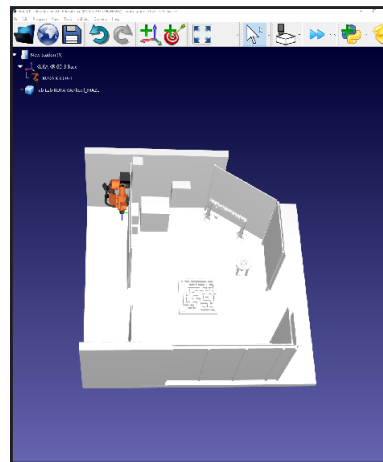
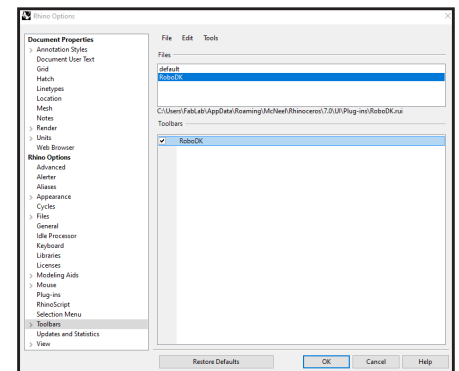
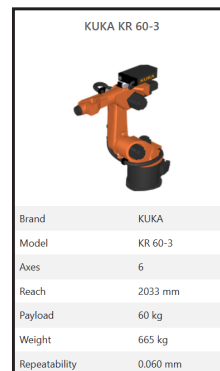
**Step 06:** Click on the **"Open Robot Library"** option and select **"KUKA KR 60-3."** Click **"Open"** to import the robot into RoboDK

**Step 07:** In RoboDK in the station tree click and drag the **"workcell"** into the **"KUKA KR 60-3 Base"** parent folder. Then delete the **"Reference Rhino"** reference Frame.

**Step 08:** Open the rhino file **"M6A4\_WORKCELL\_Maze-2023.3dm"** in the RoboDK plug-in **"Load Curve(s)"** and select the maze solution path and hit enter.

**Step 09:** In RoboDK click and drag the **"RhinoPart"** into the **"KUKA KR 60-3 Base"** and delete the **"Reference Rhino"**

**Step 10:** In RoboDK click **"Add New Reference Frame"** icon (Axis Gumball with a Plus Sign) in the toolbar and right click it in the station tree then select **"Rename"** as Robot Center.



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**Step 12:** In RoboDK click and drag the **“KUKA KR 60-3”** and add it to the **“Robot Center”** reference frame parent in the station tree.

**Step 13:** In RoboDK click and drag the **“Robot Center”** and add it to the **“KUKA KR 60-3”** reference frame parent in the station tree.

**Step 14:** In RoboDK double click the **“Robot Center”** reference frame in the station tree and change the red (first) to 2000 and green (second) to 3000 axis number.

**Step 15:** In RoboDK in the station tree right-click the **“RhinoPart Settings”** and click **“Options”** to assign the curve in RoboDK.

**Step 16:** Click **“Select Curve”** and choose the curve path uploaded from Rhino which should appear green. Once selected, click **“Done”** and then **“Update and Simulate.”** If done correctly you should now see the robot following the curve path.

**Step 17:** Use the simulation buttons and slider at the bottom of RoboDK to play the simulation.

