

ANSYS WB - Bike Crank - Setup (Physics)

Author: Benjamin Mullen, Cornell University

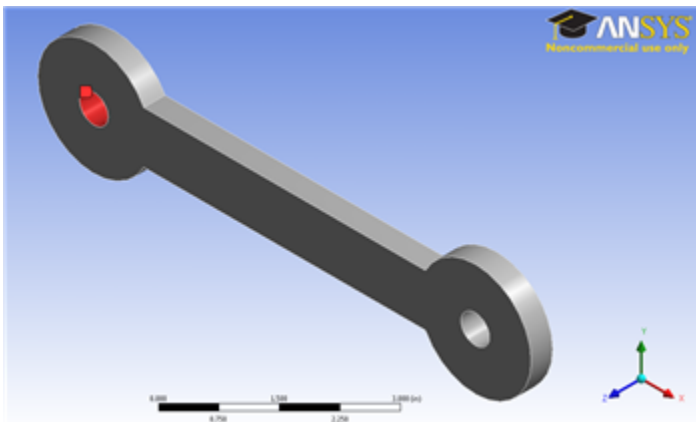
Problem Specification

1. Pre-Analysis & Start-Up
2. Geometry
3. Mesh
4. Setup (Physics)
5. Solution
6. Results
7. Verification & Validation

Setup (Physics)

Force Loading

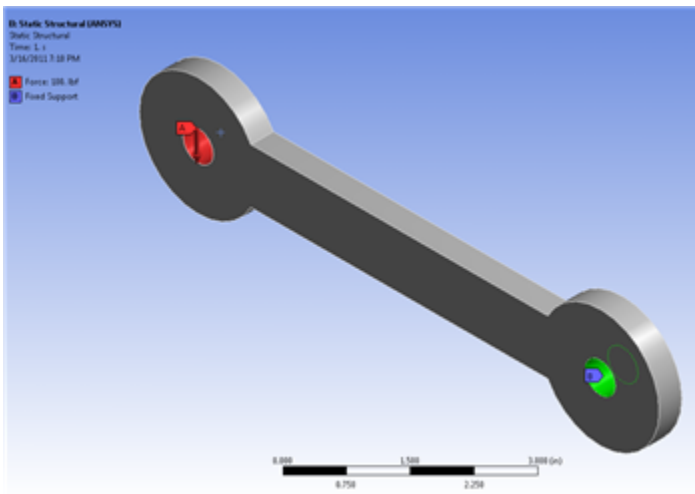
Ok, now we can specify the loading and boundary conditions for the simulation. First, we will specify the 100 lb force on the bike crank at the origin (if you don't know where the origin is, click on  **Coordinate Systems** to see it). Click on  **Static Structural (B4)** to open the loading tool bar, then select **Loads > Force**. We want to apply the force to the surface on the inside of the hole at the origin. So make sure you are selecting a surface by selecting . Next, select the inside of the hole at the origin, and select **Geometry > Apply**



Next, we need to specify the magnitude of the force. We want the 100 lb force to point in the negative y-direction. To do this, we need to select **Define By > Components**, then specify the **Y Component** of the force to be **-100 lbs**.

Fixed Support

Now that the force has been applied to the bike crank, we need to fix a part of the bar. To accomplish this task, select **Static Structural > Supports > Fixed Support**. Select the inside face of the other hole just like we selected the geometry for the force and click **Geometry > Apply**.



The setup is now complete; next, we will choose what we want to solve for and solve the simulation.

Continue to [Step 5: Solution](#)

[Go to all ANSYS Learning Modules](#)

[See and rate the complete Learning Module](#)