Bike Crank - Numerical Results

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Numerical Results

Deformed Shape

The following video shows how to plot the deformed shape and use it to check if the displacement constraints have been applied correctly.

Summary of steps in the above video:

1. Under the tree, highlight Solution
2. Select Deformation > Total Deformation
3. Solve

Sigma_x Contours

We next take a look at σ_x variation in the model.

Summary of steps in the above video:

1. Under the tree, highlight Solution
2. Select Stress > Normal Stress
3. Check that it is in the X direction and rename to sigma_x
4. Solve

You can save an image of the contours to a file using the instructions below.

It's incredibly hard to describe in words where this button is located. Watch the video and skip to 0:18 for the location. OR use the snipping tool.

Below, we take a closer look at the σ_x variation on the front face and compare it to what we expect from beam bending theory.

Summary of steps in the above video:

1. Next to Probe, click on Max and Min to enable the location of highest and lowest normal stress in the x direction

We interrogate σ_x variation in the interior of the model using "section planes".

Sigma_x along a Line using "Path" Operations

First, we create two coordinate systems which we'll use to define the start and end points of the line.

Second, we create the desired line on the front face.

Last, we extract T along the line and export the results to an Excel file.

Go to Step 7: Verification & Validation

Go to all ANSYS Learning Modules