

Bike Crank AIM - Pre-Analysis & Start-Up

Author(s): Andrew Dawd, Cornell University

[Problem Specification](#)

[1. Pre-Analysis & Start-Up](#)

[2. Geometry](#)

[3. Mesh](#)

[4. Physics Setup](#)

[5. Numerical Solution](#)

[6. Numerical Results](#)

[7. Verification & Validation](#)

[Comments](#)

Pre-Analysis & Start-Up

Pre-Analysis

In the *Pre-Analysis* step, we'll review the following:

- **Mathematical model:** We'll look at the governing equations + boundary conditions and the assumptions contained within the mathematical model.
- **Numerical solution procedure in ANSYS:** (e.g.: We'll briefly overview the solution strategy used by ANSYS and contrast it to the hand calculation approach.
- **Hand-calculations of expected results:** We'll use an analytical solution of the mathematical model to predict the expected stress field from ANSYS. We'll pay close attention to additional assumptions that have to be made in order to obtain an analytical solution

Start-Up

The following video introduces the ANSYS AIM software and interface. We start out by understanding how to begin a Static Structural Simulation in AIM and also how to import a Geometry in the simulation. We will later assign a material to the model.

[Go to Step 2: Geometry](#)

[Go to all \(ANSYS or FLUENT\) Learning Modules](#)