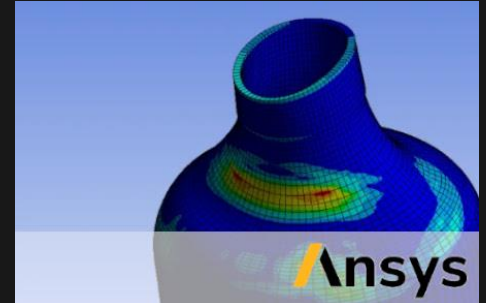


Ansyes Mechanical

2 November 2020



Agenda

09:00 – 09:30	Welcome
09:30 - 12:30	<p>Workshop 01 - Mechanical Basics</p> <ul style="list-style-type: none"> Become more familiar with basic ANSYS Workbench Mechanical functionality (menu options, toolbar buttons, etc.) <p>Workshop 02 - 2D Gear and Rack</p> <ul style="list-style-type: none"> In order to design the mechanism for applying the load, we need to know the required torque in the gear to produce the necessary force <p>Workshop 03 - Linear Structural Analysis</p> <ul style="list-style-type: none"> Our primary goals are to analyze the assembly with a 100 N load on the belt to confirm that: <ul style="list-style-type: none"> - impeller will not deflect more than 0.075 mm - plastic pump housing will not exceed the material's elastic limits <p>Workshop 04 - Beam Connections</p> <ul style="list-style-type: none"> The geometry consists of a 2-part flange assembly. The fasteners holding the flange together are not modeled explicitly. Instead, we'll use Mechanical's beam connection feature to simulate them <p>Workshop 05 - Mesh Evaluation</p> <ul style="list-style-type: none"> In this workshop an arm from a mechanism will be solved using several different meshes and the results will be compared. Our primary goal is to explore how mesh changes can have dramatic effects on the quality of the results obtained
12:30 – 13:00	Quick Lunch
13:00 – 17:00	<p>Workshop 06 - Parameter Management</p> <ul style="list-style-type: none"> Use the Workbench Parameter Manager to set up multiple analysis scenarios to explore structural responses of the bracket. Various combinations of gusset and bracket thicknesses will be considered <p>Workshop 07 - Mesh Creation</p> <ul style="list-style-type: none"> The goal of this workshop is to use several techniques in order to mesh an assembly.

Workshop 08 - Modal Analysis

- Our goal is to investigate the natural vibration characteristics of the machine frame.
- We will solve two modal analyses using two different mounting arrangements and compare the results.

Workshop 09 - Steady State Thermal Analysis

- In this workshop we will analyze the pump housing for its heat transfer characteristics.
- We'll consider two materials: plastic and aluminum.
- Our goal is to compare thermal results for these two material configurations.

Workshop 10 - Eigenvalue Buckling Analysis

- Our primary goal in this workshop is to predict the eigenvalue buckling load for the pipe geometry and to compare the analytical results to closed-form calculations from an engineering handbook.
- In addition, we will apply an expected compressive load and determine the factor of safety with respect to buckling.
- Finally, we will verify that the structure's material will not fail before buckling occurs.