Summary of tutorials (v 1.2)

This is a suite of tutorials with the aim to get new users up and running with using primarily LS-DYNA and LS-PrePost for explicit and implicit analysis. A tutorial for LS-OPT is also included. If you have any comments on the tutorials, please send an e-mail to support@dynamore.se. The tutorials will be updated as time goes by.

If you teach at a university and would like to use the tutorials in your classes, you are welcome to do so.

Contents

0. **Introduction**
   Presents information about LS-DYNA and LS-PrePost. Important to read before starting with the other tutorials.

1. **Getting started**
   Learn how to set up a simple finite element model in LS-PrePost.

2. **Tensile test**
   Perform a tensile test, both explicit and implicit, and get familiar with basic material modeling.

3. **Crashbox impact analysis**
   Understand how to use contacts in LS-DYNA by compressing a box. Using mesh tools in LS-PrePost and how the explicit time step is calculated are also covered in this tutorial.

4. **Eigenvalue**
   Perform an eigenvalue analysis of a tire.

5. **Hardening and failure**
   Get familiar with how to use material models for isotropic and kinematic hardening. Failure criteria are also introduced in this exercise.

6. **Bolt pre-stressing**
   This tutorial is divided into two parts. The first part consists of using the geometry and mesh tools in LS-PrePost. The second part includes how to prestress a bolt using dynamic relaxation.

7. **Parameter identification using LS-OPT**
   An introduction to the optimization program LS-OPT. A parameter identification will be performed.

8. **2D CFD-analysis with vortex shedding**
   Get to know the Incompressible Computational Fluid Dynamics (ICFD) solver in LS-DYNA using this classical 2D-vortex shedding simulation.

9. **Fluid-structure interaction with the ICFD solver**
   Set up a basic 3D fluid-structure interaction simulation using the Incompressible Computational Fluid Dynamics (ICFD) solver in LS-DYNA.

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