Plasticity, Plastics, and Viscoplastics Materials in LS-DYNA

Objective of the course: Learn about several plasticity based material models in LS-DYNA to solve engineering problems. Detailed descriptions are given of the data required to use such material in analysis. Examples are used to illustrate the points made in the lectures.

Introduction

Experimental Characterization

Material Models for Plasticity

*MAT_003 *MAT_PLASTIC_KINEMATIC

*MAT_010 *MAT_ELASTIC_PLASTIC_HYDRO

*MAT_015 *MAT_JOHNSON_COOK

*MAT_024 *MAT_PIECEWISE_LINEAR_PLASTICITY

*MAT_081-082 *MAT_PLASTICITY_WITH_DAMAGE

*MAT_124 *MAT_PLASTICITY_COMPRESSION_TENSION

Material Models for Plastics

*MAT_089 (*MAT_PLASTICITY_POLYMER)

*MAT_187 (*MAT_SAMP-1)

Material Models for Viscoplastics

*MAT_224 *MAT_TABULATED_JOHNSON_COOK

Material Data & Behavior Demonstration

Concluding Remarks