



Smoothed Particle Hydrodynamics in LS-DYNA

A short course taught by Dr. Jean Luc Lacombe

Organized by **LIVERMORE SOFTWARE TECHNOLOGY CORPORATION**
7374 Las Positas Road
Livermore, CA 94550
phone: (925) 449-2500
fax: (925) 449-2507
<http://www.lstc.com>

Objective

The objective of this course is to teach the engineer how to use the SPH option of LS-DYNA. Theory is presented to understand the basic principles of this meshfree method. Detailed descriptions of the data required to run LS-DYNA analysis are given. Examples are used to illustrate the points made in the lectures.

Who should attend?

This course is recommended for engineers experienced in LS-DYNA and finite elements and who want to use a meshfree method. SPH is a numerical method well suited for problems where large mesh distortions occur and also for fluid/structure interaction problems.

COURSE CONTENTS – Lectures begin daily at 9am, and run until 5 pm

COURSE OUTLINE

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|-----------------------------------|-------------------------------------|
| History of the method | Basic Principles - Theory |
| General Capabilities/Applications | Characteristic lengths |
| SPH/Finite Element coupling | Particle Approximation of functions |
| Details of an example | Concept of renormalization |
| Control Input | The Neighbor Search |
| Material, Sections, Parts | Using LS-PRE/POST |
| Outputs | Workshop |