



Locations:

Livermore Software Technology Corp.

7374 Las Positas Rd. Livermore, CA 94551

1740 West Big Beaver Road Troy, MI 48084

Contact: classes@lstc.com

www.lstc.com/training

Blast Using LS-DYNA

Instructor: Dr. Ala (Al) Tabiei

3 Days - \$1000 Students \$500 w/student ID

Includes on site continental breakfasts, lunches, breaks, class dinner

Includes 30-day LS-DYNA demo license to practice

Prerequisite: Introduction to LS-DYNA Class.

Students should have a command of the LS-DYNA keywords and options associated with typical Lagrangian analyses.

Description: The class is designed for students to use LS-DYNA analyze blast loadings on vehicles (IED and mines), as well as proective barrier. Some mathematical theory is presented for each technique, especially Eulerian and Mesh-free Methods. Examples are used to illustrate the points made in the lectures.

1. Introduction

- a. Introduction to Wave Propagation
- b. Numerical Techniques to solve High energy problems
 - Lagrangian - Eulerian & ALE
 - SPH & EFG - DEM
- c. Sample applications

2. Blast Modeling

- a. Blast Wave Simulations Techniques
- b. Blast Mitigation Techniques
- c. Applications: Vehicles

3. Under Water Blast

- a. Simulation Techniques

4. Material Behavior Under Severe Loading

- a. Material Models Library
- b. Strain Rate Effect
- c. What is Available That Works for the Defense Problems
 - Isotropic
 - Composites
 - Soil iv. Concrete

5. Failure and Damage Modeling

- a. Fracture
- b. Damage
- c. Element Erosion

6. Hybrid-III Dummy Response to Blast

- a. Dummy models and dummy response to blast

7. Blast Mitigation Structures (literature review)

- a. Blast mitigation concepts
- b. Seat designs for blast mitigation
- c. Blast energy absorp tion seat components

8. Modeling Techniques

- a. Mesh design
- b. Problem initialization
- c. Post-processing

9. References