



## Class Locations:

Livermore Software Technology Corp.

7374 Las Positas Rd. Livermore, CA 94551

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## Introduction to the ICFD solver and CFD

**Instructor:** Inaki Caldichoury, LSTC

**2 Days - \$400 Students \$200 w/student ID**

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

**Includes 30-day LS-DYNA demo license to practice**

**Prerequisite:** Students should already be familiar with LS-DYNA

**Description:** This two day class is sectioned into 4 areas, each area will be a half a day of instructions.

### **Section 1: Introduction to the ICFD solver & CFD**

**Objective** Understanding the fundamental concepts of fluid mechanics and CFD codes & being able to apply them using the ICFD solver

#### **Outline**

- General principles
- Setting up a simple CFD problem and being able to post treat it and judge its results
- Setting up free surface problems for slamming/sloshing or dam breaking applications. A glimpse at the wave generator. **New in R9**
- Non-Newtonian flows and porous media

### **Section 2: Fluid structure interaction and DEM coupling**

**Objective:** Understanding the fundamental concepts of FSI, the different options available (strong/weak coupling) and apply them to the ICFD solver

#### **Outline:**

- General principles behind FSI
- Setting up a loose and strong FSI problems
- Watching out for pitfalls and special techniques
- DEM Coupling. New in R9

### **Section 3: Thermal coupling for Conjugate heat transfer**

**Objective** Being able to couple the thermal structure and fluid solvers. Understanding the numerical methods involved.

#### **Outline:**

- General principles
- Modeling a thermal problem in CFD
- How to couple with the structure to solve the complete conjugate heat transfer problem
- Advanced methods to extract the heat transfer coefficient. New in Development version.

### **Section 4: Advanced CFD and latest developments**

**Objective** For users who frequently work with CFD or interact frequently with CFD engineers, to gain a deeper understanding of the methods involved

#### **Outline:**

- Advanced turbulence models. **New in R9**
- Advanced post treatments and ways to control the analysis.
- A glimpse in the ICFD solver in the future, the steady state solver. New in Development version.