Composite Materials in LS-DYNA

Instructor: Dr. Ala (Al) Tabiei

2 Days - $1,250  Students $950 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 composites.

Description: The class is designed for students to use LS-DYNA to analyze problems using sandwich and composite materials in the area of deformation and strength composites. Examples are used to illustrate the points made in the lectures.

- **Introduction**
- **Mechanics of Composite Materials**
  - Lamina
  - Symmetric Laminate with in-plane loads
  - Symmetric Laminate with bending and twist loads
  - Symmetric Laminate with both in-plane and flexural loads
  - Un-symmetric Laminate
  - Strength and Failure
- **Shell Theories**
- **Failure Theories**
- **Lamination Theory and Transverse Shear**
- **List of all LS-DYNA Composite Materials**
- **Sandwich Composites**
  - Through Thickness Integration
  - Sandwich Material Models
- **Composite Micro-Mechanics Models (user-defined materials as an examples)**
  - Woven Composites
  - Strain Rate Effect
  - Fiber Reorientation
  - Flexible loose Woven Fabric

Workshop: There will be several examples, which are designed to understand and reinforce the lectures and the concepts presented. The course will provide users with experience of running and trouble-shooting LS-DYNA composite materials analysis.