



*Hands On, Measurable  
Training Programs*

## Abaqus/Explicit: Advanced Topics

Course Code	EDU-SIMULIA 2020-ADXP_A
Brand & Release	SIMULIA 2020
Duration	3 days
Level	Advanced
Prerequisites	This course is recommended for simulation analysts and engineers with experience using Abaqus.

### Objectives:

The course emphasizes practical skills and techniques that are needed for analyses with Abaqus/Explicit. The course uses examples derived from actual industrial applications to reinforce the concepts and issues discussed in the lectures.

### Class Structure:

The course includes the following topics:

- The explicit dynamics method
- General contact
- Adaptive meshing
- Automatic mass scaling for impact problems
- Automatic mass scaling for quasi-static problems
- Using both Abaqus/Explicit and Abaqus/Standard to solve difficult problems like results transfer and co-simulation
- Modeling high-strain-rate deformation and failure
- Output filtering
- Managing large models

Upon completion of this course you will be able to:

- Use the explicit dynamics method effectively, including the application of general contact, mass scaling, and adaptive remeshing
- Use Abaqus/Explicit and Abaqus/Standard together to solve difficult problems
- Model high-strain-rate deformation and failure
- Filter output

### Class Lessons:

Lesson 1: Overview of Abaqus/Explicit  
Lesson 2: Elements  
Lesson 3: Contact Modeling  
Lesson 4: Quasi-Static Analyses  
Lesson 5: Constraints and Connections

Lesson 6: Impact and Post-buckling Analyses  
Lesson 7: Material Damage and Failure  
Lesson 8: Importing and Transferring Results  
Lesson 9: Managing Large Models  
Lesson 10: Output Filtering