

August 14 - 16, 2019

ZEUS is ZONA's Euler Unsteady Aerodynamic Solver that integrates the essential disciplines required for aeroelastic design/analysis. During ZEUS Training, users will be guided as they explore the many features of ZEUS, including the formulation of the Full Euler Solver with Boundary Layer Option, Linearized Euler Solver for Rapid Frequency-Domain Aeroelastic Analysis, Automated Mesh Generation, Aerodynamic Modeling Guidelines; and applying ZEUS to Flutter, Loads, Static Aeroelastic/Trim Analysis, as well as complex configurations.

DAY ONE

- Introduction
- ZEUS Overview
 - Main Features of ZEUS
- ZEUS Input Data Structure Formulation of the Full Euler Solver with Boundary Layer Option
 - Euler Solver
 - Boundary Layer Coupling
 - Tightly Coupled Aeroelastic Simulation
- Linearized Euler Solver for Rapid Frequency-Domain Aeroelastic Analysis
 - Linearized Euler Equation
 - Linearized Boundary Condition
 - Generation of Frequency-Domain Generalized Aerodynamic Forces
- Input Bulk Data Cards for the Euler Solver
- Automated Mesh Generation
 - Surface Mesh Input
 - Generation of a Block of Mesh
 - Overset Mesh

DAY TWO

- Input Cards for Aerodynamic Modeling
- Aerodynamic Modeling Guidelines
- Flutter Analysis
 - Methods for Generating Generalized Aerodynamic Forces
 - Input Cards for Flutter Analysis
 - Sample Cases for Frequency-Domain Flutter Analysis
- Maneuver Loads (MLOADS) Analysis
 - Input Cards of MLOADS Module
 - Sample Case for MLOADS Analysis
- Static Aeroelastic / Trim Analysis
 - Theoretical Background of Trim Analysis
 - Sample Cases for Trim Analysis

DAY THREE

- Examples for Complex Configurations
 - Steady Hypersonic Analysis of Bent-Nose Compact Kinetic Energy Missile (CKEM) with Eight Wrap-Around Fins
 - Frequency-Domain Flutter Analysis of a Twin-Engine Transport Flutter Model
 - Boeing Joined-Wing Trim Analysis
- Hands-On Training (**Laptop Required**)



ZONA TECHNOLOGY

ZEUS Training Schedule

DAY 1 – WEDNESDAY, AUGUST 14

12:00 pm - Welcome Check-In

- 1:00 pm - ZEUS Overview
- 1:30 pm - ZEUS Input Data Structure Formulation
- 2:00 pm - Linearized Euler Solver for Rapid Frequency-Domain Aeroelastic Analysis
- 3:00 pm - Input Bulk Data Cards for the Euler Solver
- 3:30 pm - Break
- 3:40 pm - Automated Mesh Generation
- 4:40 pm - Question & Answer
- 5:00 pm - Class Dismissed

DAY 2 – THURSDAY, AUGUST 15

- 9:00 am - Input Cards for Aerodynamic Modeling
- 10:30 am - Break
- 10:40 am - Aerodynamic Modeling Guidelines
- 11:00 am - Spline
- 12:00 pm - Lunch Break**
- 1:00 pm - Flutter Analysis
- 2:00 pm - Maneuver Loads (MLOADS) Analysis
- 3:30 pm - Break
- 3:40 pm - Static Aeroelastic / Trim Analysis
- 4:40 pm - Question & Answer
- 5:00 pm - Class Dismissed

DAY 3 – FRIDAY, AUGUST 16

- 9:00 am - Examples for Complex Configurations
- 10:30 am - Break
- 10:40 am - Hands-On Training
- 12:00 pm - Lunch Break in Hearth Room**
- 1:00 pm - Continue Hands-On Training
- 3:30 pm - Break
- 4:40 pm - Question & Answer
- 5:00 pm - Class Dismissed

