ZEUS

August 8 - 10, 2018
Gainey Suites Hotel
7300 E Gainey Suites Dr.
Scottsdale, AZ 85258

ZEUS is **ZONA's Euler Unsteady Aerodynamic Solve**r 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
- Input Cards for Aerodynamic Modeling
- Aerodynamic Modeling Guidelines

DAY TWO

- 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
- 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

DAY THREE

- Hands-On Training (**Laptop Required**)

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ZEUS Training Schedule

Gainey Suites Hotel
Room: Gainey C

DAY 1 – WEDNESDAY, AUGUST 8

8:30 am - Welcome Check-In
9:00 am - ZEUS Overview
10:00 am - ZEUS Input Data Structure Formulation
10:30 am - Break
10:40 am - Linearized Euler Solver for Rapid Frequency-Domain Aeroelastic Analysis
11:30 am - Input Bulk Data Cards for the Euler Solver
12:00 pm - Lunch Break in Hearth Room
1:00 pm - Automated Mesh Generation
3:00 pm - Input Cards for Aerodynamic Modeling
3:30 pm - Break
3:40 pm - Aerodynamic Modeling Guidelines
4:40 pm - Question & Answer
5:00 pm - Class Dismissed

DAY 2 – THURSDAY, AUGUST 9

9:00 am - Flutter Analysis
10:30 am - Break
11:10 am - Maneuver Loads (MLOADS) Analysis
12:00 pm - Lunch Break in Hearth Room
1:00 pm - Static Aeroelastic / Trim Analysis

3:30 pm - Break
3:40 pm - Examples for Complex Configurations
4:40 pm - Question & Answer
5:00 pm - Class Dismissed

DAY 3 – FRIDAY, AUGUST 10

9:00 am - Hands-On Training
10:30 am - Break
10:40 am - Continue 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

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