AUTODESK CFD ESSENTIAL TRAINING

Objectives

The main objective of this course is to guide new users in the use of the Autodesk® CFD software. After completing this course users will be able to:

- ✓ Open and navigate the Autodesk CFD environment to conduct flow and thermal analyses on part and assembly models.
- ✓ Use the Model Assessment Toolkit to investigate the suitability of model geometry for analysis, and use Autodesk® Sim Studio Tools to make required changes to the CAD geometry.
- ✓ Create internal and external fluid volumes.
- ✓ Setup analyses by applying appropriate materials, boundary conditions and mesh settings.
- ✓ Refine mesh to obtain a proper solution.
- ✓ Apply appropriate solver settings to run your analyses and converge to an acceptable solution.
- ✓ Use the visualization tools to compare summary images, summary values, and summary plots of your analyses to compare design and scenario results of an Autodesk CFD analysis.
- ✓ Conduct a final validation of your solution by running through a validation checklist.

Pre-requisites

This guide is designed for new users of Inventor. It is recommended that you have a working knowledge of:

- Microsoft® Windows® 7, Microsoft® Windows® 8 or Microsoft® Windows® 10
- Flow and Thermal analysis with the ability to interpret the results.

TRAINING PROGRAMME DAY 1

Chapter 1: Introduction to Autodesk CFD

- Introduction to CFD
- Introduction to Autodesk CFD
- Autodesk Inventor Interface
- Autodesk CFD Workflow
- When to use Autodesk CFD

Chapter 2: Geometry

- Geometry Requirement and Tools
- Model Assessment Toolkit
- Surface Wrapping
- Sim Studio Tools Overview
- Using Devices to Simplify Geometry

Chapter 3: Material and Devices

- Overview of Materials
- Assigning Materials
- Using Devices

Chapter 4: Boundary Conditions

- Boundary Conditions
- Flow and Thermal Conditions
- Assigning Boundary Conditions

TRAINING PROGRAMME DAY 2

Chapter 5: Meshing

- Meshing Overview
- Automatic Mesh Sizing
- Mesh Refinement
- Manual Mesh Sizing
- Shaded Mesh

Chapter 6: Solver Settings

- Solving a Simulation
- Solving Multiple Designs

Chapter 7: Results Visualization and Interpretation

- Visualizing Your Results
- Global Results
- Planes Result task
- Traces Result Task
- ISO Surface and ISO Volume Result Tasks
- Wall Calculator Results Tasks
- Parts Result Task
- Point Result Task
- Decision Center

Chapter 8: Validation Checklist

- Validating Your Simulation