IFS Academy

Training for the future!!!

Basic Training Program in Computational Fluid Dynamics Using ANSYS CFX

Course Curriculum

Chapter 1: Before you start using Ansys CFX

a. Introduction to the Finite Element Method
b. What is the Finite Element Method?
c. History
d. General Steps of the Finite Element Method
e. Advantages of the Finite Element Method
f. Limitations of the Finite Element Method
g. About Ansys Inc.
h. Ansys family of products
i. Types of analyses that can be done with Ansys
j. Revision of Fluid Dynamics
k. Basic equations of Fluid Mechanics
l. Types of Flows
m. Turbulence Modeling
n. Boundary Layer Theory
o. What is Computational Fluid Dynamics (CFD)?
p. The History of CFD
q. The Mathematics of CFD
r. Uses of CFD
s. CFD Methodology
t. The Structure of Ansys CFX
u. Getting started with Ansys CFX
v. The Directory Structure of Ansys CFX
w. Ansys CFX File Types
x. Using the CFX Launcher
y. How to Use Help

Chapter 2: Ansys CFX Pre

a. Ansys CFX Pre Basics
b. Importing and Transforming meshes
c. Regions
d. Materials & Reactions
e. Expressions
f. UDFs
g. Domains
h. Boundary Conditions

Chapter 3: Ansys CFX Solver

a. Basic Capabilities Modeling
b. Boundary Conditions Modeling
c. Initial Condition Modeling
d. Domain Interface Modeling
e. Real Fluid Properties
f. Introduction to Turbulence Modeling
g. Introduction to Radiation Modeling
h. Tips & Tricks for Flow Modeling

Chapter 4: Ansys CFX Post

a. Overview of Ansys CFX Post
b. CFX Post Workspace
c. CFX Post File Menu
d. CFX Post Edit Menu
e. CFX Post Insert Menu
f. CFX Post 3D Viewer
g. CFX Post Tools Menu

Chapter 5: Best Practices

a. Best Practices Guide for Numerical Accuracy
b. Best Practices Guide for Cavitation
c. Best Practices Guide for Combustion
d. Best Practices Guide for HVAC
e. Best Practices Guide for Multiphase
f. Best Practices Guide for Turbomachinery

Chapter 6: Sample Flow Analysis

a. Workshop

Chapter 7: Sample Conjugate Heat Transfer Analysis

a. Workshop

Chapter 8: Sample Supersonic Flow Over Wing Analysis

a. Workshop

a. **Chapter 9: Project on Ansys CFX**

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