

## **MT-622: Modeling and Simulation of Fluid Flows**

Preprocessing: Introduction of Gridgen Software, Modeling and Mesh generation around 2D Bump: Basic Skills, Modeling and Mesh generation around 2D Airfoil: Re-Extrude, Modeling and Mesh generation around Cubes and Spheres: Layer Manager, Modeling and Mesh generation around Swept Ramp: Basic Multi Block Structured Grid

Swept Ramp: Advanced Multi Block Structured Grid, Modeling and Mesh generation around 2D. Solver: Introduction to using ANSYS FLUENT: Fluid Flow and Heat Transfer in a Mixing Elbow, Modeling Periodic Flow and Heat Transfer, Modeling External Compressible Flow, Modeling Transient Compressible Flow, Post-processing.

Post processing: Introduction of Tecplot Software, Single curve generation, Multiple curve generation, Contour plots.

### Reference Books:

1. J.C.Tannehill, DA. Anderson, RH. Pletcher, Computational Fluid Mechanics and Heat Transfer, 3rd Edition, 2013.
2. Gridgen Tutorial Work book, Edition 15. 2003.