

In-house internship program on

" Computational Fluid Dynamics Simulation using ANSYS"

June 19-30 , 2023

Introduction:

Two-week In-house internship program on “Computational Fluid Dynamics simulation using ANSYS” was organized by the Department of Mechanical Engineering, SATI Vidisha, during June 19-30, 2023 for second and third year students of UG engineering program.

In this program, twenty sessions each of three hours duration were organized to cover the entire gamut of the topic including providing practical and hands on experience. The program was organized for the B. Tech. pre final year and final year students especially those students who were not able to get any appropriate internship program during this summer vacation.

Objective:

The primary objective of this IIP is to provide necessary training on Computational Fluid Dynamics software that can be utilized for simulation of various fluid and thermal systems. The program will facilitate the students to understand the essential concepts of CFD tool, methodology through a hands-on training.

Program Contents:

Following topics will be covered during the in-house internship program (IIP):

1. Introduction to CFD: Computational approach to Fluid Dynamics and its comparison with experimental and analytical methods
2. Governing differential equations and boundary conditions
3. Solution Methodology: Domain discretization with FDM, FVM and FEM, Stability, Convergence and Accuracy.
4. Finite Volume Method: Domain discretization and grid generation
5. Pressure velocity-coupling, SIMPLE, SIMPLEC & PISO-Algorithm
6. Diffusion and Convection-diffusion problems
7. Lab Session on Diffusion and Convection-diffusion problems
8. Introduction CFD software: Geometry; grid, generation, solver, post processing.
9. Lab session on Laminar flow through a circular Pipe
10. Hands-on session on Simulation of Microchannel Heat Exchanger.
11. Hands-on session on Simulation of Microchannel Heat Sink
12. Hands-session on Simulation of Natural Circulation Loop



