

**Course Title: SOLIDWORKS MOTION AND FLUID FLOW SIMULATION**      **Course Code: MEC 102**

**Course Background / Summary:**

The "SOLIDWORKS Motion and Fluid Flow Simulation" course offers a comprehensive exploration of two crucial aspects of engineering and design: motion analysis and fluid flow simulation. Designed to equip participants with practical skills and theoretical insights, this course delves into the dynamic realm of mechanical movement and the intricate behavior of fluids within various systems.

**Motion Analysis:**

Participants will embark on a journey to understand and simulate the motion of mechanical assemblies using SOLIDWORKS Motion. Through hands-on exercises, they will learn to predict and visualize the behavior of complex mechanisms, evaluating factors such as velocity, acceleration, forces, and dynamic interactions. By mastering motion analysis techniques, participants will gain the ability to optimize designs, enhance performance, and ensure the reliability of mechanical systems.

**Fluid Flow Simulation:** In the realm of fluid dynamics, participants will dive into the world of SOLIDWORKS Flow Simulation. This segment of the course focuses on simulating fluid behaviors within different environments, providing insights into the impact of fluid dynamics on system performance. Participants will learn to predict fluid flow patterns, pressure distributions, and heat transfer phenomena. By conducting virtual experiments, they will optimize designs, troubleshoot flow-related issues, and make informed engineering decisions.

**Course Objectives:**

- To develop skills in analyzing the CFD model for external and internal fluid flow.
- To understand and interpret the results of numerical simulation.
- To identify proper tools to do motion simulation and forces.
- To know the post process and flexible joints to run a simulation.

**Target Audience:**

- Management Level/Supervisory Level/Supporting Staffs.

**Course Duration: 4 Days**

**Course Contents**

**1.0 Introduction to Computational Fluid Dynamic**

**2.0 CFD Pre-processing (Meshing)**

**3.0 CFD Solver Setup**

**4.0 CFD Post Processing (Result Interpretation)**

**5.0 Practical Project (Internal Flow & External Flow)**

**6.0 Practical Project (Heat Transfer)**

**7.0 Introduction to Simulation Motion**

**8.0 Setting Up Motion and Forces**

**9.0 Post Processing**

**10.0 Contact, Springs, and Dampers**

**11.0 Flexible Joint**