National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Modelling and Simulation of Physiological Flows
Speaker	: Sameer Kumar Verma (Roll No: 522me1012)
Supervisor	: Prof. Saurav Datta, PIC (Departmental Seminar)
Venue	: Seminar Hall (Room Number: ME -001)
Date and Time	: 23 Dec 2024 (1100 AM)
Abstract	: The dynamics of fluid flow in the cardiovascular and pulmonary systems are essential for understanding diseases and developing treatments. This study integrates computational fluid dynamics (CFD) and mathematical models to examine physiological flows, focusing on airflow, particle deposition in pulmonary airways, and cardiovascular hemodynamics. Multi-physics, multi-scale modeling, and fluid-structure interaction (FSI) simulations provide insights into complex systems, enabling patient-specific models derived from medical imaging data. These models facilitate personalized diagnostic and therapeutic strategies. Emerging trends like artificial intelligence (AI) and machine learning enhance predictive capabilities. In this talk, I will summarize the basic learnings on pulmonary and cardiovascular fluid mechanics gained from the GIAN course organized by the Mechanical Engineering Department at IIT Kharagpur.