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COMMITTED TO RESEARCH, INNOVATION AND EDUCATION 47 years

One - Week

National Level Workshop on

Computational Research in Fluid-Flow and Transport (CRAFT 2025)

Theme : "Hands-on CFD Simulation using ANSYS Fluent for Chemical Engineers"

18 October 2025 - 23 October 2025

Organized by

Department of Chemical Engineering

About the College

CBIT is one of the premier Engineering Institutes in India, pioneer in Telangana State, which is at idyllic surroundings of Gandipet Lake, Hyderabad. The college offers 12 UG and 10 PG programs. It has been standing as a temple of knowledge for the past 47 years by producing more than 25,000 eminent and skillful graduate engineers, who are successful in their careers, serving all over the globe. The Institute has been accredited by NAAC – UGC with 'A++' Grade and various programs are accredited by NBA – AICTE. The institution is UGC autonomous since 2013-14. Stringent academic standards, industry compliant teaching methodology, research projects from private and public sector organizations and consultancy practice enabled the Institute to establish it's identity in the Technical Education and is ranked as one of the best amongst the private engineering colleges.

About the Department

Established in 1995, the Department of Chemical Engineering has earned a strong reputation for academic excellence in Telangana and Andhra Pradesh. Accredited by the NBA under Tier 1, the department features state-of-the-art laboratories and maintains active industry collaborations through MoUs with leading national and multinational companies. It has undertaken funded research projects from organizations such as Sun Pharma, MSN laboratories and IIChE. Faculty and students are actively engaged in multidisciplinary research, with publications in reputed national and international journals.

Department Vision

To be a department of excellence in chemical engineering education and research, fostering innovation, sustainable technological advancement, and entrepreneurship, while empowering graduates to lead in academia, industry, and startups.

Department Mission

M1: Deliver quality technical education that build sstrong fundamentals and real-world problem-solving skills.

M2: Advance research and innovation in sustainable and emerging technologies, addressing global challenges through interdisciplinary collaboration.

M3: Foster entrepreneurship, ethical responsibility, and leadership for global impact.

About the workshop

With the growing demand for process optimization, energy efficiency, and design precision, Computational Fluid Dynamics (CFD) has emerged as a vital analytical and design tool in modern chemical engineering practice. CFD enables engineers and researchers to visualize, predict, and quantify complex flow, heat transfer, and mass transfer phenomena that occur in various unit operations, equipment, and reactors, thereby reducing dependence on costly and time-consuming experimental trials. The Workshop on Computational Research and Advanced Flow Techniques (CRAFT 2025) is aimed at equipping chemical engineering students and early researchers with hands-on training in ANSYS Fluent, one of the most widely used CFD software packages in both academia and industry. Through guided sessions, participants will gain practical experience in setting up, simulating, and interpreting CFD models related to laminar and turbulent flows, heat exchangers, mixing vessels, and reactive systems. By the end of the program, participants will be capable of applying CFD tools to analyze performance, optimize process conditions, and innovate sustainable design solutions in diverse chemical engineering applications.

OBJECTIVES

- To impart fundamental knowledge of CFD concepts and governing equations for chemical process systems.
- To train participants in geometry modelling ,meshing, solver setup and post processing using ANSYS-FLUENT.
- To simulate fluid flow, heat transfer, reactor systems through guided case studies.
- To develop the ability to interpret CFD results for process design and performance optimization.
- To encourage interest in computational research and simulation based learning among students.

OUTCOMES

After completion of the workshop, the participants will be able to:

- Explain the fundamental equations governing the fluid flow and heat transfer in CFD.
- Build and mesh 2D/3D geometries for standard chemical process systems.
- Set up boundary conditions, select turbulence models , and perform solver configuration in FLUENT.
- Simulate and analyze flow, temperature and species concentration fields in reactors and exchangers .
- Interpret CFD results for decision-making in design or optimization process.

Workshop Topics

1.Introduction to Computational Fluid Dynamics (CFD)
2.Mathematical Modeling of Transport Phenomena
3.Discretization and Numerical Schemes
4.Meshing and Geometry Preparation
5. Solver Setup in ANSYS Fluent
6.Post-Processing and Result Interpretation
7.Hands-on sessions on the modules of Fluid flow, Heat Transfer and Reactors.

Who can participate?

UG 3rd & Final Year Chemical Engineering Students, PG & Research Scholars - CBIT & Outside.

Pre-requisites:

Basic knowledge of Fluid Mechanics, Heat & Mass Transfer, Reaction Eng., and numerical methods.

Resource Persons

Prof. Anand Mohan
IIT Hyderabd

Prof. P. Venkata Suresh
NIT Warangal

Dr. Teja Reddy Vakamalla
NIT Calicut

Ravinder Rao Jalagam -
ANSYS Academic Partner , CRO - Dhyeya

Dr. Ch. Indira Priyadarsini
CBIT