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Professor, Chemical Engg.

COORDINATOR

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Assistant Professor, Chemical Engg.

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RESOURCE PERSONS

Eminent Academicians & Researchers from IIT'S & Other Prominent Organizations

TARGET PARTICIPANTS

Faculty, Research Scholars, PG students of Mechanical Engg., Civil Engg., Electrical Engg., Chemical Engg., Chemical Technology, Physics, Chemistry & Mathematics

REGISTRATION : FREE

Link for Registration: https://forms.gle/4v47pMB2BMHhvibj7

The registration is limited to 100 participants on First come, first served basis.

Last date of Registration: **20 November, 2026**

All the registered participants will get the certificates.

ADDRESS FOR CORRESPONDENCE

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A TWO DAY National Workshop On "BEYOND EQUATIONS : Transforming Technology through Modelling & Simulation"

With Hands on Training on COMSOL

25th —26th November, 2026

In Association with

COMSOL Multiphysics Bengaluru

Organized by:

Department of Chemical Engineering
School of Chemical Technology
Harcourt Butler Technical University
Kanpur, Uttar Pradesh-208002
Website: www.hbtu.ac.in

ABOUT THE UNIVERSITY

Harcourt Butler Technical University, Kanpur (Formerly HBTI, Kanpur) was established in 1921 and has a glorious history and has always been in the forefront for technological developments and growth of industries in the country since its inception. The Institute had its decent beginning as Government Technological Institute, Uttar Pradesh in 1921. The Institute was renamed as Harcourt Butler Technological Institute in 1926 in the honor of name of Sir Spencer Harcourt Butler, the then Governor of U.P. Degree courses in Oil Technology and Chemical Engineering were started in 1954 and thereafter number of undergraduate and post graduate courses were started. On March 26, 1965, it was upgraded from a Government Department status to an autonomous Institution. It was upgraded as Harcourt Butler Technical University, Kanpur on September 01, 2016 by Govt. of UP. University spreads across two campuses - East Campus (77 acres) and West Campus (271 acres) situated approximately 3 kilometers apart. The University provides a congenial environment for the holistic growth and all-round development of the students.

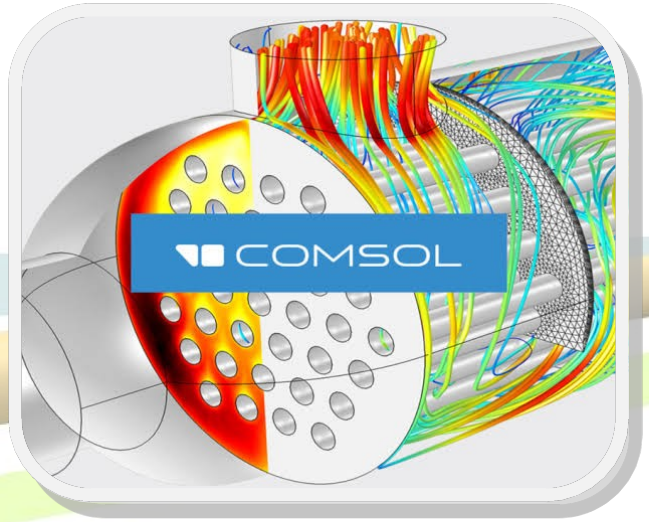
ABOUT THE DEPARTMENT OF CHEMICAL ENGINEERING

The Department has built up a comprehensive research infrastructure with top-notch facilities for carrying cutting-edge teaching and research. The Department strives to provide its students with facilities and environment that are conducive for creative and dynamic work. The department has run several research programs in Technology, Engineering and Basic Sciences, of which some were sponsored by institutions like U.G.C, C.S.I.R, D.S.T. (NEW DELHI) B.A.R.C. (BOMBAY) I.C.A.R. (NEW DELHI), U.P.C.S.T (LUCKNOW) M.H.R.D. (NEW DELHI), C.I.D.A (CANADA). The faculty has extensively contributed by writing books and publishing good number of research papers in national and international journals of repute. The department has organized a number of National and International seminars, workshops, and Short courses.

ABOUT COMSOL

COMSOL Multiphysics is a premier simulation software that enables engineers and researchers to model, simulate, and optimize physics-based designs across countless scientific disciplines. Unlike single-purpose engineering tools, its defining strength lies in its ability to simulate coupled physical phenomena simultaneously—a capability known as multiphysics modeling—such as analyzing how fluid flow alters structural mechanics, or how electromagnetics generate heat within a system. Driven by powerful numerical methods like the Finite Element Method (FEM), the software provides a unified workflow from geometry creation and automated meshing to advanced solving and postprocessing. Beyond its core simulation environment, it features an Application Builder that lets users convert complex models into simplified, standalone simulation apps, making sophisticated engineering insight accessible to non-experts and cross-functional teams worldwide.

Today, advanced modeling and simulation platforms like COMSOL Multiphysics have completely redefined this paradigm. By translating complex, coupled partial differential equations into dynamic visual models, simulation allows engineers to peer inside operating systems—observing fluid-structure interactions, thermal stresses, and electromagnetic fields operating simultaneously in real time.



ABOUT THE WORKSHOP

In modern engineering, the true value of a mathematical equation is realized only when it is brought to life. Traditionally, engineers relied on rigid, isolated formulas to predict performance, followed by costly and time-consuming trial-and-error prototyping. Moving beyond static calculations transforms simulation into a vital tool for virtual prototyping and deep technological innovation. It empowers cross-disciplinary engineering teams to explore extreme operating limits, optimize complex geometries, and discover hidden flaws before a single physical component is ever manufactured. In an era where technological progress demands rapid, sustainable, and highly efficient product lifecycles, modeling and simulation serve as the bridge between theoretical physics and market-ready breakthroughs. It is no longer just about solving equations; it is about predicting the future of technology and engineering it today.

TOPICS COVERED IN WORKSHOP

1. **From Physical Phenomena to Governing Equations**
2. **Engineering Assumptions, Simplifications, and Model Development**
3. **Multiphysics Modeling of Fluid Flow, Heat Transfer & Structural Mechanics**
4. **Modeling Chemical Engineering and Electro chemical Systems**
5. **Hands-on: Bimetallic Strip in Airflow**
6. **Hands-on: Battery Modelling**