



BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI

Department of Chemical Engineering

TWO-DAY HANDS-ON WORKSHOP ON

INDUSTRIAL CHEMICAL PROCESS DESIGN, SIMULATION, AND OPTIMIZATION USING ASPEN PLUS

5th-6th September 2026 | CAD Laboratory, Department of Mechanical Engineering

DAY 1 • 05 SEPTEMBER 2026

TIME	SESSION / ACTIVITY	DETAILS
09:00-09:30	Registration	Location: F-III (LH-3/4)
09:40-09:55	Inauguration	Guest of Honour: Dean of Undergraduate Studies (DUGS), BIT Mesra Convenor: HoD (Chemical Engineering), Invited Expert: Prof. Rakesh Kumar, Department of Chemical and Biochemical Engineering, RGIPT, Jais Campus, Amethi, UP Location: F-III (LH-3/4)
10:00-11:30	Session 1 • Prof. Rakesh Kumar	Introduction to Aspen Simulation; setting the property environment; selection of property methods and physical-property estimation; mixer, splitter, pump, and compressor models; reactor models-RSTOIC, RGIBBS, RPLUG, and RCSTR.
11:30-11:45	Tea Break	
11:45-01:15	Session 2 • Prof. Rakesh Kumar	Fundamentals of bubble point and dew point, and their calculation in ASPEN; fundamentals of flash calculation and simulation in ASPEN.

01:15-02:30	Lunch Break	Institute Guest House (IGH)
02:30-04:00	Session 3 • Prof. Rakesh Kumar	Design concepts of distillation columns; simulation using DSTWU and RADFRAC models in ASPEN.
04:00-04:15	Tea / Snacks Break	
04:15-05:45	Session 4 • Prof. Rakesh Kumar	Case Study: Mono-Chlorobenzene separation process.
05:45-06:00	Feedback & Felicitation	Feedback and felicitation to the speaker.

DAY 2 • 06 SEPTEMBER 2026

TIME	SESSION / ACTIVITY	DETAILS
10:00-11:30	Session 5 • Dr. Arnab Karmakar	CASE STUDY: Methanol/Cyclohexane Production
11:30-11:45	Tea Break	
11:45-01:15	Session 6 • Dr. Yogendra Nath Prajapati	CASE STUDY: Integrated Crude Oil Refinery Simulation in Aspen Plus Crude Blending → Pre-Flash Tower → Atmospheric Crude Distillation Unit (CDU) → Vacuum Distillation Unit (VDU)
01:15-02:30	Lunch Break	Institute Guest House (IGH)
02:30-04:00	Session 7 • Dr. Anand Bharti	CASE STUDY: Extraction of acetic acid from aqueous solution Azeotropic distillation vs. hybrid extraction/distillation process.
04:15-04:30	Closing	• Feedback • Certificate Distribution • Vote of Thanks • High Tea

Hands-on learning • Process simulation • Industrial case studies