

Registration Form

Name _____

Designation _____

Institute _____

Gender: Male/Female

Postal Address _____

Email Id _____

Telephone/Mobile No _____

Undertaking:

I Shall abide by the rules and regulations and shall Attend the course. Failing which certificate may not be issued

Signature of the candidate
(with date)

Sponsorship Prof./Dr./Mr./Ms./Mrs./_____

_____ an employee of our institute, is hereby sponsored for the course. The applicant will be permitted to attend the "QIP short term course on "Decoding the Flow Behavior of Multiphase Flow Reactors through Experimental and Numerical Tools" at IIT (BHU), Varanasi, to be held during 18- 23 January, 2020, if selected.

Signature with date of Sponsoring Authority
Designation & Official seal

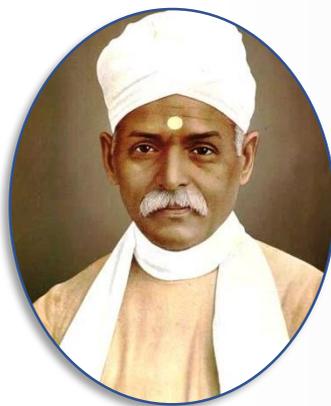
COORDINATOR

Dr. Rajesh Kumar Upadhyay
Associate Professor
Department of Chemical Engineering and Technology
Indian institute of technology (BHU) Varanasi
Varanasi-221005, U.P.
Email: rku.che@iitbhu.ac.in

CO-COORDINATOR

Prof. Pradyumna Ghosh
Professor
Department of Mechanical Engineering
Indian institute of technology (BHU) Varanasi
Varanasi-221005, U.P.
Email: pghosh.mec@iitbhu.ac.in

FOUNDER OF THE IIT(BHU)



PANDIT MADHAN MOHAN MALAVIYA

Address For Correspondence

Dr. Rajesh Kumar Upadhyay
Department of Chemical Engineering and Technology
Indian institute of technology (BHU)
Varanasi-221005,UP,India
Email: rku.che@iitbhu.ac.in



AICTE Sponsored QIP
Online Short Term Course

DECODING THE FLOW BEHAVIOUR
OF MULTIPHASE FLOW REACTORS
THROUGH EXPERIMENTAL AND
NUMERICAL TOOLS

DURATION

18-23 January 2021



JOINTLY ORGANISED BY
Department of Chemical Engineering and Technology
and Department of Mechanical Engineering
Indian Institute of Technology (BHU) Varanasi
Varanasi-221005, U.P.

INTRODUCTION

Multiphase flow reactors are critically important in chemical, petrochemical, food, pharmaceutical and bio-medical industries. Despite the wide-spread usage of multiphase reactors, the methodology used for design, scale-up and troubleshooting of these reactors is mainly based on experience and some heuristic “rules-of-thumb”. Improvements in design and scale-up strategies are possible only with better understanding and quantification of the fundamental multiphase fluid mechanics. The successful approach towards the understanding of such complex flows requires reliable experimental data and numerical modelling. Therefore, sophisticated measurement and computational fluid dynamics (CFD) techniques with capability to provide the information over the entire flow field is required.

In this course participants will be given a complete understanding of multiphase flow reactors/contactors. Further, different CFD approaches like Euler-Euler, Euler-Lagrangian and Interface Capturing methods, which are used to model multiphase flows, will be explained in detail. The theory of CFD simulations will be followed by hands-on sessions on different commercial and open source CFD software packages. Finally various experimental techniques used in investigations of multiphase flow reactors will be explained in detail. Special focus will be made on Particle Image Velocimetry (PIV) and Radiation based techniques like Radioactive Particle Tracking (RPT) and Gamma-ray Densitometry

COURSE CONTENTS

- Introduction to Multiphase Flow
- Introduction to CFD in Multiphase Flows
- Introduction to Experimental techniques
- Euler-Euler modelling of Gas-Liquid flows
- Euler-Euler modelling of Gas-Solids flows
- Interface capturing Techniques
- Particle Image Velocimetry
- Radioactive Particle Tracking
- Gamma-ray densitometry/tomography
- Post processing of data for RPT and densitometry experiments
- Different Case studies
- Summary of CFD and Experimental Techniques and applications for different cases

EXPERTS

Subjects experts will be drawn from premier Institutions like IITs, NITs, IISc and Research organizations like BARC, BPCL etc.

PROGRAMME DURATION

One week 18-23 January 2021

STC will be conducted in online mode Link will be Shared to all the participants

WHO CAN PARTICIPATE

The course is open to faculty members of Engineering Colleges and a few polytechnics approved by AICTE.

REGISTRATION

Registration Link

<https://docs.google.com/forms/d/e/1FAIpQLSfs7DHUEuNhS73yPibEkFnVT8y45ZyephPKprwDYOFXLLewPw/viewform?vc=0&c=0&w=1&flr=0&gxids=7628>.

Intending Participants are requested to receive their names by filling the online registration form, and also by send thing registration form duly signed by competent authority in case of any difficulty, you can contact us at rku@iitbhu.ac.in

Last date of Registration: 14th January 2021

Registration Fee: Nil

Course Mode: Online

ABOUT THE INSTITUTE

The Indian Institute of Technology (Banaras Hindu University) owes its existence to Mahamana Pandit Madan Mohan Malviya, Bharat Ratna-the founder of the first residential university of modern India, the Banaras Hindu University. The three of the erstwhile engineering colleges of BHU, namely BENCO, MINMET and TECHNO, were merged to form the Institute of Technology (IT-BHU) in 1968 to provide an integrated educational base. The IT-BHU has been admitting students through the JEE conducted by the IIT's since 1972, and has been consistently ranked amongst the top few engineering institutions of the country. IT-BHU became IIT (BHU) in June 29, 2012 by an Act of Parliament. The Institute has maintained high academic standard since its inception. It has turned out luminary engineers and administrators who served the nation with great distinction.

ABOUT CHEMICAL ENGINEERING AND TECHNOLOGY DEPARTMENT

Department of Industrial Chemistry was established in 1921 at Banaras Hindu University. Subsequently, it was renamed as the Department of Chemical Engineering and Technology in 1956. The Department has established several benchmarks of achievements in teaching and research. It modernizes its programmes to impart education in upcoming areas of chemical engineering.



The research facilities of the department are utilized not only by other departments of the institute and BHU but also by other teaching institutions and research laboratories. The floor area of the department is 4,002 sq. meter. The department 18 laboratories, a workshop, 7 lecture theatres, a 250 seat auditorium, a library having over 11,000 volumes of text and reference books and a textbook bank and internet facility.

ABOUT MECHANICAL ENGINEERING DEPARTMENT



The Department of Mechanical Engineering came into existence in 1919 under the leadership of Professor Charles A. King, the first Head of the Department and Principal of the erstwhile Banaras Engineering College. Over the last ninety nine years, the department has grown four folds to become the largest department in IIT (BHU), Varanasi. The post-graduate and doctoral program in the department is well-established and infrastructural facilities exist for studies and research for a range of specialisations such as Machine Design, Thermal and Fluid Engineering, Production Engineering and Industrial Management.