



**B.M.S. COLLEGE OF ENGINEERING, BENGALURU**  
Autonomous Institute, Affiliated to VTU  
**Department of Chemical Engineering**

1. **Name of the Department:** Chemical Engineering
2. **Name of the Activity:** Technical talk on “Coiled flow inverter: a novel device”
3. **Objectives:**
  - To understand the working of a coiled flow inverter
  - To encourage innovation in the field of chemical engineering.

4. **Date, Time Venue of the Activity:**

**Date:** 11/05/2023

**Time:** 2:30 pm

**Venue:** Room 3002, third floor, PG Block, Chemical Engineering Department, BMSCE.

5. **Brief summary of the Program:**

The event began with an introduction to Professor K.D.P. Nigam from the Department of chemical engineering, Indian Institute of Technology, Delhi. The students were briefed about Professor K.D.P. Nigam and his achievements and contributions to the scientific world, which was given by Dr. Sreelakshmi Diddi. The event then proceeded with Professor Nigam speaking about his invention and how the invention looks to revolutionize the usage of reactors. The event was interactive and students asked and answered questions related to the content presented. Professor Nigam also provided an insight into researching at University of Adelaide, Australia. The event ended with a group photograph of Professor Nigam with the faculty and students of the Department of Chemical Engineering.

Development of microscale equipment is mainly focused on reaction, mixing and heat transfer; however for implementation in the process industry also separation is required. In particular, equipment is missing that suits (i) the integration in a full-flow chain (ii) and production capacities of kilo- and pilot-labs in industry, which amounts to product- and solvent flows of 1-10 kg/day and 10-100 l/day. The device COILED FLOW INVERTER (CFI) which enhances mixing by inverting the flow due to 90 degree bend was recently tested for immiscible Liquid-liquid extraction performance at TU Eindhoven with model systems given by European Federation of Chemical Engineering of acetone-water-toluene and acetone-water-butyl-acetate. Partition coefficient were calculated and compared with the value at thermodynamic



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equilibrium. The performance of CFI device was further tested for metal extraction which is significant for removal of metal catalyst from the product especially for pharmaceutical substances. Copper scavenging experiments were performed using chelating agents with the initial setup. The use of different types of copper catalysts and metal scavengers were investigated together with variation of metal scavenger concentration and pH. Such analysis allowed achieving excellent extraction efficiency up to 99% enabling to meet the limit for APIs of 15 ppm in single stage of separation.

6. **Number of participants:**38

7. **Photographs:**





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**B.M.S. COLLEGE OF ENGINEERING, BENGALURU-19**  
**DEPARTMENT OF CHEMICAL ENGINEERING**

*Accredited under Tier-I, 2<sup>nd</sup> Cycle of Washington Accord*



**PRESENTS**

**GUEST LECTURE SERIES: 103**

**BY**

**Prof. K.D.P. NIGAM,**  
Professor, Department of Chemical Engineering  
Indian Institute of Technology, Delhi

**TOPIC**

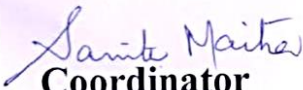
**New Trends in Technology**  
**“COILED FLOW INVERTER: A NOVEL DEVICE”**


**Day & Date: Thursday 11<sup>th</sup> May 2023**

**Time: 11.30 am**

**VENUE: Classroom 3002 (PG Block, 3<sup>rd</sup> Floor)**

**For all 6<sup>th</sup> & 8<sup>th</sup> semester students & Faculty**

  
**Coordinator**  
**Dr. Samita Maitra**

  
**Head of the Department**  
**Dr. Suneetha .Y.K**

**DR. Y.K. SUNEETHA**  
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