



## Centre for Continuing Education

(QIP Programme – Sponsored by AICTE)

Indian Institute of Science, Bengaluru – 560012, Karnataka, India

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## QIP SHORT TERM COURSE ON CONCEPTS IN CHEMICAL REACTION ENGINEERING 10 – 14 JUNE 2019

### Introduction

Exposure to Concepts in Chemical Reaction Engineering (CRE) is a distinguishing feature in the education of chemical engineers. Given the increased focus on scientifically based sustainable processes for meeting future energy and material needs, it is imperative to develop teaching methodologies that combine key concepts with contemporary applications and facilitate imbibing of problem-solving skills with the aid of relevant software. This course aims to highlight novel ways of introducing concepts in CRE to students at UG and PG levels.

### Course Objectives

To highlight concepts in synthesis of reactor networks for complex kinetic schemes and available software aids for teaching. To demonstrate use of software tools for solving problems involving multiscale coupling of kinetics and transport. To highlight the application of basic CRE concepts in understanding fuel-cell design. To appreciate industrial applications, and emerging challenges and opportunities for research in multiphase catalytic reactor design.

### Course Contents

Day 1: *Attainable Region (AR) Analysis for Reactor Network Synthesis (Tutorial using Jupyter Notebooks)*

Day 2: *Computational Modelling of Reactive Flows (Tutorial using ANSYS Student edition)*

Day 3: *Mixing and Chemical Reactions, CRE for Fuel Cell Design*

Day 4: *Chemical Reaction Stoichiometry for Reaction Networks (Python Programs), Concepts in Catalysis*

Day 5: *Concepts in Microkinetic Modeling, Single Event based Modeling of Hydroprocessing*

### Lecturers

Lectures/Tutorials will be delivered by Institute faculty members as well as experts from academia and industry.

## Eligibility:

The course is meant for teachers of engineering colleges recognized by All India Council for Technical Education (AICTE) who send their applications through proper channel. There is no course fee for them. Selected teachers will be paid TA at actuals subject to the limit of Three-tier AC train/bus fare by the shortest route from the place of work to Bengaluru and back. However, the maximum TA payable is Rs.3000/-. They will be provided with a daily allowance of Rs.500/- (for 5 days only) towards boarding and lodging as per QIP rules and will be supplied with the course material. The lodging charges will be Rs.300/- per day. Local participants will be paid DA @ Rs.150/- per day for 5 days. The total number of seats is limited to 70 for applying and 30 candidates will be selected for the course.

In addition, non-sponsored AICTE approved college teachers and other self-support teachers, scientists from research labs, practising engineers from industries and other interested are eligible. They should pay the fees online along with the application as under.

<b>Fees</b>	<b>Faculty: 10000+18% GST INR</b> <b>Industry Participants: 15000+18% GST INR</b> They will be entitled to participate in the course and receive the course material. Single room accommodation is available on the Institute campus at the Hoysala House. The participants must request in advance along with the registration form for such accommodation. The lodging charges will be Rs.1000/- per day for self-support college teachers and Rs.1500+18%GST per day for Industry participants, subject to availability of accommodation.
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<b>For More Details Contact</b>	<b>Section Officer</b> <b>Centre for Continuing Education</b> <b>Indian Institute of Science</b> <b>Bengaluru – 560012</b> <b>Ph: 080 - 2293 2055/ 2293 2491/ 2360 0911</b> <b>Email: <a href="mailto:so.cce@iisc.ac.in">so.cce@iisc.ac.in</a>, <a href="mailto:office.cce@iisc.ac.in">office.cce@iisc.ac.in</a></b>
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<b>Apply online at:</b>	<a href="http://iisc.online/qip/home.html">http://iisc.online/qip/home.html</a>
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## Co-ordinator



Dr. Venugopal Santhanam is an Assistant professor in the Dept. of Chemical Engineering, IISc and teaches the Chemical Reaction Engineering course for graduate students. His group undertakes process and product development research in the area of nanomaterials for energy and sensing applications. He is a recipient of the Humboldt research fellowship for experienced researchers

**Last Date to Apply:**  
**10/05/2019**

**Intimation of Selection:**  
**17/05/2019**