Two week AICTE - FDP on

Reactive Separations: Theory, Practice and Industrial Applications

(25th November - 06th December 2019)

Sponsored by
All India Council for Technical Education (AICTE), New Delhi

Organized by
Department of Chemical Engineering
Dr. Babasaheb Ambedkar Technological University
Lonere, Dist. Raigad, 402 103
Maharashtra
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Dr. Yogesh S. Mahajan

Co-coordinator
Prof. Mrs. S. P. Dhongade

Patron
Professor V. R. Sastry
Hon'ble Vice-Chancellor

Introduction

Chemical Engineering implies synthesis of engineering and chemistry. Chemical Engineering has witnessed transforming changes since its development. One of these is combining reaction and separation in a single vessel, namely Reactive Separation (RS), which is a relatively new development combining reaction and separation in one vessel. Traditionally, industry follows the sequential approach of reaction followed by separation. RS may offer many advantages to processes, wherever it is applicable. It may bring in simplicity and novelty to the process flow sheet. RS is known for investment and operating cost savings garnered on successful scale-up to commercial applications. Main advantages are in the energy and capital cost savings as well as in increased reaction efficiency. Sometimes, RS is the only method to effect separation where conventional means like distillation and extraction are not feasible.

Truly speaking, RS is not new, its application dates back to the early days of gas handling, coal tar and petroleum refining and even chemical production. Absorption and reaction (Reactive Absorption, **RA**) processes were commercialized long back. But R&D activities related to the area of RS were not explored. In late 1970s and early 1980s, commercial applications of Reactive Distillation (**RD**) or

Catalytic Distillation (**CD**) for methyl acetate and methyl ethyl tertiary butyl ether (MTBE) production were introduced. Many applications using catalytic distillation are currently commercialized. Reactive Separation processes include Extraction (**RE**), Adsorption (or Chromatography **RC**), Crystallization (**RCr**), Membrane Separation or Membrane Reactor (**MR**) and miscellaneous applications. All these combinations involve coupling of reaction and one of the separations in one single vessel, due to which complexity of the combined process may shoot up multifold. Despite of the various advantages offered, several constraints may also be imposed with unforeseen difficulties.

The aim of the faculty development program (FDP) is to cover the fundamentals of the various Reactive Separation processes in detail. It is also necessary that practical difficulties in implementing the techniques be brought to the notice of the participants. For each process, case studies will be explained so that the subject matter is clear through real life examples. The sessions will be delivered by eminent personalities in the field who have vast experience in the field. Professors and experts from IIT Bombay (namely, Prof. S. M. Mahajani, Prof. R. D. Gudi and Prof. S. Bharatiya), ICT, Matunga, Mumbai (Prof. S. S. Bhagwat), NCL Pune (Dr. S. P. Kamble), VNIT Nagpur (Dr. K. L. Wasewar), NIT Warangal (Dr. Sharad Babu and Dr. M. Ramsagar), NIT Suratkhal (Dr. Rajmohan), MSU Baroda (Dr. N. V. Bhate), (Ex -) Praj Ltd., Pune (Dr. A. Kataria) and DBATU, Lonere (Dr. Yogesh S. Mahajan) will deliver the sessions. There will be hands on sessions and Practical sessions. The purpose of this FDP is two - fold: first, the participants will be made aware of the fructifying changes in RS that have occurred over the years and secondly they will be motivated to consider one of these fields by active participation through research and development.

Eligibility and Selection Criteria

The program is open to teachers of AICTE / UGC approved Institutions and working in the fields of Chemical / Petrochemical / Petroleum / Polymer and allied branches and engineering chemistry as well as Ph. D. students (Research Scholars). The FDP will accommodate at least 40 participants on '**first come first served**' basis and hence it is necessary to submit duly completed applications by registered post as well as by email as early as possible. The selected participants will be informed by email well in advance. So, it is required to submit correct email ID.

The University, Department and the vicinity

Government of Maharashtra established Dr. Babasaheb Ambedkar Technological University,

Lonere, by Act No. XXII (1989). The University is now the affiliating technical University of the state of Maharashtra by Act no. XXIX of 2014. The University is about 160 km from Mumbai and 140 km from Pune. It is well connected by road (Mumbai Goa Highway NH - 66, University is 2 km off the highway) and on Konkan Railway, nearest stations: Veer (5 km) and Mangaon (12 km). University is surrounded by State Industrial areas (MIDC): Roha, Mahad, Lote-Parshuram, Patalganga and Taloja. The University is located at the lotus feet of Raigad Fort, where Shivaji Maharaj was coroneted. Mahabaleshwar and Panchgani are the nearest hill stations in the close vicinity. Climate is pleasant during the period of the FDP with temperature of 20 - 25^{0}C with high humidity due to nearness to Sea.

Department of Chemical Engineering was established in 1992. The department possesses state of the art Analysis, Research and Development facilities. Faculty members of the Department are actively engaged in R & D and consultancy activities and have completed several Research Projects sponsored by Central Government and other bodies including UGC, and AICTE, New Delhi and also ONGC, New Delhi and the adjoining Industrial Corporations. The department has conducted about 25 FDP / STTP in the past.

Accommodation

Free multi-seated accommodation will be provided in University Guest House / University hostels as per availability. Request for family accommodation cannot be entertained.

Registration fee

There is no registration fee for the course.

Important Dates:

- Last date of receipt of application forms duly filled in: 30 October 2019. However, since seats are 40, early submission would ensure the seat.
- Information of selection before: 02nd November 2019.

Instructions:

- Participants from Recognized Institutes (Maharashtra as well as other States) will be given actual travel expenditure (generally second class train fare by the nearest route) as per AICTE / University norms.
- It is recommended to bring scientific calculators. It is also desirable, if possible, to bring Laptops with Microsoft Excel® (with solver option enabled) and Matlab® installed for better benefits, although it is not compulsory.
- Duly filled and signed forms may be scanned and sent via email as an advance copy.
- The course is fully **sponsored by AICTE**. Lodging, Boarding and Course material will be provided to all participants.

Application form

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i. Name in full: _____
_____
ii. Date of Birth: _____
iii. Designation: _____
iv. Institution: _____
_____
v. Whether the Institution is AICTE / UGC recognized: _____
vi. Highest Educational Qualification:
a. Experience (Teaching / Research / Industry, in Years): _____
vii. Subjects Taught over last three years:

viii. Address for correspondence with email ID, alternate email ID, Mobile and Phone No.: _____

_____

_____

Declaration:

The information provided above is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the course and shall attend the course for the entire duration. I also undertake to inform the Coordinators in case I am unable to attend the course, if selected.

Place: Date:

Signature of applicant with name

Sponsorship Certificate

This is to certify that Dr. / Mr. / Mrs. / Ms. _____ is an employee of this Institute and is hereby sponsored to participate in the **Two week AICTE – FDP from 25th November - 06th December 2019 on: Reactive Separations: Theory, Practice and Industrial Applications.**

Place: _____

Date: _____

Signature of Head of Institution
(With seal)

Please send completed application forms to the coordinator so as to reach early:

Dr. Yogesh S. Mahajan, (Coordinator, AICTE FDP on Reactive Separations)
Dept. of Chemical Engineering,
Dr. B. A. Tech. University, Lonere,
Tal. Mangaon, Dist. Raigad,
Maharashtra 402103

(Mobile: 9421939941, 9923188748, Email: ysmahajan@dbatu.ac.in, yogesh_mahajan66@yahoo.com)

(The form and the certificate can also be neatly typed and used, if needed. Please send a scanned copy of the signed form to the coordinator for fast registration at the email addresses mentioned above. The coordinator may also be contacted for clarifications, if any)