

Name of Faculty Dr. Mekala Mallaiah  
 Designation Associate Professor  
 Nature of Job/Appointment Regular  
 Date of Joining 01 - 06 - 2022  
 E-mail mallaiah\_chem@cbit.ac.in



Education Qualifications	Name of the Degree	Class
Ph. D	Doctor of Philosophy (Chemical Engineering)	Awarded
PG	M. Tech (Chemical Engineering)	Distinction
UG	B.Tech (Chemical Engineering)	Distinction

Work Experience

Teaching	15.5 Years
Research	14 Years along with teaching
Industry	--
Others	--

Area of Specialization Reactive Distillation, Reaction Kinetics, Modeling and Simulation

Professional Memberships --

- Responsibilities held at Institution Level
- Institute Level AQAR criteria in-charge 2023 to till date
  - Feedback Committee member 2023 to till date
  - Mentoring Auditor in-charge 2023 to till date
  - Disciplinary committee member for SHRUTHI-2024.
  - Disciplinary committee member for SHRUTHI-2023.

- Responsibilities held at Department Level
- Department Research Coordinator from 2022 to till date
  - Departmental Advisory Board Committee Member 2022 to till date
  - NBA Criteria in charge
  - Community Engagement Coordinator
  - Department IIC Coordinator
  - NAAC Coordinator
  - Internship Coordinator
  - Department Library Coordinator
  - Mentor for III sem
  - Anti-ragging Committee Member.
  - Research day Coordinator from 2022 to till date
  - Chairman- International Conference sustainable energy and environmental Development SEED-2024
  - MTO Lab incharge from 2022 to till date
  - Incharge for Academic Audit 2023 to till date

Research Guidance  
 UG Students (16 Nos.)  
 PG Students (03 Nos.)

Awards Received --

Courses Handled at Under Graduate / Post Graduate Level.  
 Transport Phenomena, Chemical Process Safety, Chemical Engineering Thermodynamics, Numerical Methods, Mathematical Methods for Chemical Engineering, Computer applications in Chemical Engineering. Membrane Technology, Advanced Transport Phenomena, Advance Chemical Engineering Thermodynamics, Fuel Cell Technology

No. of Papers Published	National Journals – Nil International Journals – 32 National Conferences – 03 International Conferences – 21 The major research work is on scale up studies on reactive distillation and development of kinetic models for homogeneous and heterogeneous catalysis process. Reactive distillation is one of the process intensification areas.
	<b>03</b>
	<b>Projects Completed: 03</b>
	1. Project Title: <b>Feasibility study on reaction kinetics</b> Amount Sanctioned: <b>4, 08,500/-</b> Duration: 18 months (09-12-2019-31-03-2021) <b>Organization:</b> Sun Pharmaceutical Industries, Gurgaon, India
	2. Project Title: <b>Scale up studies on reactive distillation.</b> Amount Sanctioned: <b>17, 19,024/-</b> Duration: 12 months (10-10-2022-10-10-2023) <b>Organization:</b> Sun Pharmaceutical Industries, Gurgaon, India
	3. Project Title: <b>Production of biodiesel from waste cooking oil in presence of liquid and solid catalysts.</b> Amount Sanctioned: <b>10, 000/-</b> Duration: 12 months (10-01-2023-10-01-2024) <b>Ref no:</b> AG/R&D/2022/557 <b>Organization:</b> IChE, Kolkata, India
Projects Carried out Consultancy Projects	<b>Ongoing projects: 03</b>
	1. Project Title: <b>Production of biodiesel from waste oil esterification,</b> Amount Sanctioned: <b>Rs. 50,988/.</b> Duration: 12 months (26.03.2024 to 26-03-2025) <b>Ref no:</b> CBIT/PROJ/-IH/I048/Chemical/D008/2024 <b>Organization:</b> CBIT Hyderabad
	2. Project Title: <b>Synthesis of carbon dots from water melon peel for the sensing of CrVI in water samples and photo detection applications</b> Amount Sanctioned: <b>Rs. 1,63,049/-</b> Duration: 12 months (26.03.2024 to 26-03-2025) <b>Ref no:</b> CBIT/PROJ/-IH/I023/Chemical/D001/2024 <b>Organization:</b> CBIT Hyderabad
	3. Project Title: <b>Fabrication of continuous microreactor for the electrochemical reduction of CO2</b> Amount Sanctioned: <b>Rs. 1,93,000/-</b> Duration: 12 months (26.03.2024 to 26-03-2025) <b>Ref no:</b> CBIT/PROJ/-IH/I039/Chemical/D006/2024 <b>Organization:</b> CBIT Hyderabad
Patents	Title: Agitator having mixing shaft with dissimilar impellers for homogeneous mixing of non-Newtonian fluids.  Patent Application No. <b>202441058603</b> <b>Published</b>
Technology Transfer	--
Invited Speaker	1. Delivered a guest Lecture on use of response surface methodology for the chemical , bio and pharmaceutical engineering problems, 2019, Department of Pharmaceutical Engineering, BVRIT Narsapur <b>Book Chapter Published: 3</b>
No. of Books/Chapter Published with details	1. Published one book chapter “Comparison of Experimental and Simulations for Esterification Process for Recovery of Acetic Acid by Reactive Distillation”, Book Titled “ Advances in Chemical, Bio and Environmental Engineering”, 2022, Environmental Science and Engineering, Springer, ISBN No.1863-5539.

2. Published one book chapter “ Kinetic Studies for the Esterification of Propionic Acid with 1-Butanol Process with Ionic Resin Catalyst ”, Book Titled “ Advances in Chemical, Bio and Environmental Engineering”, 2022, Environmental Science and Engineering, Springer, **ISBN No.1863-5539**.
3. Mallaiah Mekala, Srinath Suranani, Reactive distillation and reactive separations, Process Intensification for Chemical and Biotechnology Industries Fundamentals and Applications to Critical and Advanced Processes, Elsevier, Vol.1, 35-57, ISBN No.978-0323951777

Details of Short-Term Training Programs/Faculty Development Programs/Seminars/ Workshops/ Other Trainings (Attended and/or Organized).

1. Participated and completed STTP on “Mathematical Modelling & Numerical Techniques (MMNT)” organized by Department of Chemical Engineering, National Institute of Technology, Warangal during 17<sup>th</sup> January 2011-21<sup>st</sup> January 2011.
2. Participated in Workshop on “The Research Process in Engineering and Innovation: An Interactive Workshop for the Ph.D Scholars of NITW” by National Institute of Technology, Warangal on 13<sup>th</sup> February 2013.
3. Participated in Workshop on “Sono Process Engineering and Reactors for Nanomaterials” by National Institute of Technology, Warangal during 23<sup>th</sup> February 2013-24<sup>th</sup> February 2013.
4. Participated in Workshop on “ Advanced flow Reactors ” by National Institute of Technology, Warangal on 4<sup>th</sup> October 2013
5. Participated in Workshop on “Stepping into Advanced flow Reactors” by National Institute of Technology, Warangal on 4<sup>th</sup> October 2013
6. Participated in Workshop on “Advances in Electron microscopy” by National Institute of Technology, Warangal during 09<sup>th</sup> December 2013-13<sup>th</sup> December 2013.
7. Participated in Workshop on “Research Methodology and Scholarly Writing Skills” by National Institute of Technology, Warangal during 25<sup>th</sup> January 2014- 26<sup>th</sup> January 2014.
8. Participated in a training program on “Instructional Design and Delivery Methods” by National Institute of Technology, Warangal during 12<sup>th</sup> November 2016- 14<sup>th</sup> November 2016.

Details of Journal Publications/ Conferences (National and International)

#### International Journals

1. Pingili Vydehi, Gobinath Ravindran, G Shyamala, Sri Bala, Mallaiah Mekala, Rama Rao Karr(2024), Aerobic granular sludge-based sustainable wastewater treatment: Process, bottlenecks, and knowledge gap through scientometric perspective, **Journal of Hazardous Materials Advances**, 16, 100462, **I.F.5.4**.
2. Mallaiah Mekala(2024), Experimental studies of a continuous catalytic distillation column from startup to steady state for the production of methyl acetate, *International Journal of Chemical Reactor Engineering*, 22, 199-205, **I.F.1.2**.
3. Sai Mani Yogesh Kosuru, Yashraj Delhiwala, Prasad Babu Koorla, Mallaiah Mekala(2024), A review on the biodiesel production: Selection of catalyst, Pre-treatment, Post treatment methods, *Green Technologies and Sustainability*, 100061, Scopus Indexed.
4. Swapnil Raghunath Kavitar, Mallaiah Mekala, Srinath Suranani(2023), Multi Objective Optimization using Non-Dominated Sort Genetic Algorithm with Artificial Neural Network for Reactive Dividing Wall Column, *Theoretical Foundations of Chemical Engineering*, 57, S121-S130, **I.F.0.7**.
5. Mekala Mallaiah, Thamida Sunil Kumar(2023), Experimental investigations of the production of methyl acetate in batch catalytic distillation process in the presence of Indion 180, *Indian Journal of Chemical Technology*, 30, 667-671. **I.F.0.57**.

6. **Mallaiah Mekala**, Raju Kalakuntala, Srinath Suranani(2023) Kinetic modelling and simulations studies for propanoic acid esterification process, Journal of the Indian Chemical Society, 100(1) , 100863, **I.F.3.2**.
7. **Mallaiah Mekala**, Sunil Kumar Thamida (2022) Modeling of a Batch Catalytic Reactive Distillation Process using Multi-scale Approach of Pore Diffusion and Non-equilibrium Rate Based Model, Iranian Journal of Chemistry and Chemical Engineering, **I.F.1.903.**, 41 (12), 4246-4256.
8. **Mallaiah Mekala** (2022) Experimental and simulation studies of a continuous reactive distillation for an esterification process, International Journal of Chemical Reactor Engineering, 20 (11), 1193-1207 **I.F.1.2**.
9. Ameer Khan Pathan, **Mallaiah Mekala**, Sunil Kumar Thamida (2022) Simulation of a Steady-State Continuous Catalytic Reactive Distillation Column by Using a Multiscale Capillary Model, Chemical Engineering & Technology, 45 (5), 878-889, **I.F.1.8**.
10. **Mallaiah Mekala**, Bhoopal Neerudi, Padma Rao Are, Raviteja Surakasi, G Manikandan, Vighneswara Rao Kakara, Aditya Abhaykumar Dhumal (2022) Water Removal from an Ethanol-Water Mixture at Azeotropic Condition by Adsorption Technique, Adsorption Science & Technology, Volume 2022, Article ID 8374471, 10 pages, **I.F.2.8**.
11. Raju Kalakuntala, **Mallaiah Mekala**, Suman Chirra, Venkatathri Narayanan, Vighneswara Rao Kakara, Srinath Suranani (2022) Preparation of Ti Material Supported SBA-15 Functionalized with Sulfonic Acid Environmental Friendly Catalyst: Application for Esterification Process, Journal of Nanomaterials, Volume 2022, Article ID 6712464, 8 pages, **Scopus**.
12. **Mallaiah Mekala** (2021) Kinetic studies on esterification of acetic acid with isopropyl alcohol in presence of novel solid catalyst, International Journal of Chemical Reactor Engineering, 19 (1), 87-95, **I.F.1.2**.
13. **Mallaiah Mekala**, K Rama Rao, Ch Venkateswarlu (2021) A simulated annealing optimization algorithm based nonlinear model predictive control strategy with application, Evolving Systems, 12 (1), 225-231, **I.F. 2.7**.
14. **Mallaiah Mekala**, Venkateswarlu Chimmiri (2020) Kinetic modelling and simulation studies for the esterification process with Amberlyst 16 resin, Indian Journal of Chemistry-Section A (IJCA), 59 (10), 1494-1503, **I.F.0.729**.
15. **Mallaiah Mekala**, Venkateswarlu Chimmiri (2019) Development of an Activity Based Kinetic Model for an Esterification Process with Indion 180 Catalyst, International Journal of Chemical Reactor Engineering, 17 (9), **I.F.1.2**.
16. **Mallaiah Mekala** (2019) Data on conceptual design and simulation of reactive distillation process, Data in brief, 27, 104262, **I.F.1.0**.
17. Kishore Kumar Sriramoju, **Mallaiah Mekala**, Srinivas Gowrishetty, Venkateswarlu Chimmiri(2018) Kinetic Studies for the Esterification Process with Ionic Resin Catalyst: Optimization using Response Surface Methodology, International Journal of Engineering & Technology, 7 (3.29), 714-719, **Scopus**.
18. **Mallaiah Mekala**, Y. Pydi Setti, Srinivas Gowrishetty, Kishore Kumar sriramoju (2018) Determination of optimum conditions in a continuous wall heated fluidized bed dryer, International Journal of Pure and Applied Mathematics, 118 (24), 1-17, **Scopus**.

19. Anand Kishore Kola, **Mallaiah Mekala**, Venkat Reddy Goli (2018) Optimization studies on biosynthesis of citric acid by one-factor-at-a-time, *Chemistry & Chemical Technology*, 12 (4), 511-518, **I.F.1.0**.
20. Ameer Khan Patan, **Mallaiah Mekala**, Sunil Kumar Thamida (2018) Dynamic Simulation of Heterogeneous Catalysis at Particle Scale to Estimate the Kinetic Parameters for the Pore Diffusion Model, *Bulletin of Chemical Reaction Engineering & Catalysis*, 13 (3), 420-428, **I.F.1.0**.
21. **Mallaiah Mekala**, Venkat Reddy Goli(2018) Data on acetic acid–methanol–methyl acetate–water mixture analysed by dual packed column Gas Chromatography, *Data in brief*, 18, 947-960, **I.F.1.0**.
22. **Mallaiah Mekala**, Venkateswarlu Chimmiri (2017) Kinetic Behaviour of Esterification of Acetic-Acid with Methanol over Solid Acid Catalysts, *Austin Chemical Engineering*, 4 (2), 1055, 1-5.
23. **Mallaiah Mekala**, Anand Kishore Kola, Venkat Reddy Goli (2017) Catalytic Reactive Distillation for the Esterification Process: Experimental and Simulation, *Chemical and Biochemical Engineering Quarterly*, 31 (3), 293-302, **I.F.1.677**.
24. Anand Kishore Kola, **Mallaiah Mekala**, Venkat Reddy Goli (2017) Experimental design data for the biosynthesis of citric acid using Central Composite Design method, *Data in brief*, 12, 234-241, **I.F.1.0**.
25. Ameer Khan Patan, **Mallaiah Mekala**, Sunil Kumar Thamida (2016) Dynamic Simulation Using COMSOL Multiphysics for Heterogeneous Catalysis at Particle Scale, *Proceedings of the COMSOL Conference in Bangalore*.
26. **Mallaiah Mekala**, Venkat Reddy Goli(2016) Simulation of continuous packed bed reactive distillation column for the esterification process using activity based kinetic model, *Theoretical Foundations of Chemical Engineering*, 50 (4), 404-413, **I.F.0.7**.
27. **Mallaiah Mekala**, Venkat Reddy Goli(2016) Optimization studies on a continuous catalytic reactive distillation column for methyl acetate production with response surface methodology, *Journal of the Taiwan institute of chemical engineers*, 69, 25-40, **I.F.5.477**.
28. **Mallaiah Mekala**, Venkat Reddy Goli(2015) Kinetics of esterification of acetic acid and methanol using Amberlyst 36 cation-exchange resin solid catalyst, *Progress in Reaction Kinetics and Mechanism*, 40 (4), 367-382, **I.F.0.642**.
29. **Mallaiah Mekala**, Venkat Reddy Goli(2015) Kinetic Study of Esterification of Acetic Acid with Methanol over Indion 190 Acidic Solid Catalyst, *Kinetics and Catalysis*, 56 (4), 419-427, **I.F.1.399**.
30. **Mallaiah Mekala**, Venkat Reddy Goli(2015) Kinetics of esterification of methanol and acetic acid with mineral homogeneous acid catalyst, *Chinese Journal of Chemical Engineering* 23 (1), 100-105, **I.F.3.898**.
31. **Mallaiah Mekala**, Venkat Reddy Goli(2014) Comparative kinetics of esterification of methanol–acetic acid in the presence of liquid and solid catalysts, *Asia-Pacific Journal of Chemical Engineering*, 9 (6), 791-799, **I.F.1.777**.
32. **Mallaiah Mekala**, Sunil Kumar Thamida, Venkat Reddy Goli(2013) Pore diffusion model to predict the kinetics of heterogeneous catalytic esterification of acetic acid and methanol, *Chemical Engineering Science*, 104, 565-573 9 (6), 791-799, **I.F.4.889**.

#### **International/National Conferences**

1. Sai Mani Yogesh Kosuru, Prasad Babu Koorla, Mallaiah Mekala ,A review on bioethanol production: First generation to third generation (IICHE-CHEMCN 2023), CHEMBIOEN-2023, December 27-30, 2023, HIT, Kolkata .
2. Sumanath Goddenla, Harsha Pradha Kadmuru, Prasad Babu Koorla, Mallaiah Mekala Development of kinetic model for the esterification of n-propionic acid and n-propyl alcohol (IICHE-CHEMCN 2023), CHEMBIOEN-2023, December 27-30, 2023, HIT, Kolkata .
3. M. Venkata Sainatah Reddy, Navpreet Kaur, Mallaiah Mekala, Modelling and simulation of reactive distillation for ethyl acetate production (IICHE-CHEMCN 2023), CHEMBIOEN-2023, December 27-30, 2023, HIT, Kolkata .
4. Raju Kalakuntala , Prasad Babu Koorla, **Mallaiah Mekala** and Srinath Suranani, Auto catalyzed propionic acid esterification with n-butanol over heterogeneous catalyst, CHEMBIOEN-2022, November 4-5, 2022, BVRIT, Narsapur.
5. Vinay Rao R, Hema Manikanta S , Karuna and **Mallaiah Mekala**, A review on bioethanol production process at first, second and third generations, CHEMBIOEN-2022, November 4-5, 2022, BVRIT, Narsapur.
6. Raju Kalakuntala , Navpreet Kaur , Bhoopal Neerudi , **Mallaiah Mekala** , Srinath Suranani (2022) “ Kinetic modelling and simulations studies for propionic acid esterification process ”, NMTEEA, February 18-19, 2022, BITS Pilani, Hyderabad.
7. **Mallaiah Mekala**, Bhoopal Neerudi, AV Raghavendra Rao (2021) Comparison of Experimental and Simulations for Esterification Process for Recovery of Acetic Acid by Reactive Distillation,CHEMBIOEN-2021, August 20-22, 2021, NIT Jalandhar.
8. Raju Kalakuntla, **Mallaiah Mekala**, Bhoopal Neerudi, Srinath Suranani (2021) Kinetic Studies for the Esterification of Propionic Acid with 1-Butanol Process with Ionic Resin Catalyst,CHEMBIOEN-2021, August 20-22, 2021, NIT Jalandhar.
9. **Mallaiah Mekala** (2021) A review on pretreatment of lignocellulosic biomass,Challenges in the production of 2G Bioethanol-2021, August 09-10, 2021, IIT Tirupathi.
10. Sri Poojitha Bhandaru, Pravalika Ellenthala, **Mallaiah Mekala**(2019), Optimization studies on pectin extraction from waste peels, ARTCHE19, 22<sup>nd</sup> and 23<sup>rd</sup> March 2019, CBIT, Hyderabad.
11. Rukmini Rayannagari, Tirumalaiah Velivala, **Mallaiah Mekala** (2019), Kinetic studies on esterification of n-propanol with n-propionic acid, CHEMCON-2018, December 16-19, Punjab University.
12. Rukmini Rayannagari, Tirumalaiah Velivala , **Mallaiah Mekala** (2018), Adsorption and swelling studies for solid catalyst in binary liquid mixture, DIMS2018, 15<sup>th</sup> -16<sup>th</sup> December 2018, NIT, Warangal.
13. Raju K, **Mallaiah Mekala**, Uday Bhaskar Babu, Srinath S. (2018), Kinetic studies on propionic acid with n-butanol using heterogeneous catalyst, ICRAAESCCT-2018, July 13-14 2018, BVRIT, Narsapur.
14. Ramarao Karri, **Mallaiah Mekala**,Venkateswarlu Chimmiri (2018), Simulated annealing based nonlinear model predictive control of runaway batch chemical reactor, ICRAAESCCT-2018, July 13-14 2018, BVRIT, Narsapur.
15. **Mallaiah Mekala**, Kishore Sriramoju, Srinivas G, Venkateswarlu Chimmiri (2018), Kinetic studies for the esterification process with ionic resin catalyst: Optimization using response surface methodology, ICRAAESCCT-2018, July 13-14 2018, BVRIT, Narsapur.

16. Ch. Venkateswarlu, Datta Sai Kalyan, K. Eshwar Rao, Kanaka Teja, Nani Kumar Reddy, **Mallaiah Mekala** (2018), Kinetic studies for the esterification process with ionic resin catalyst: Optimization using response surface methodology, CHEMCON-2018, December 27-30, NIT Jalandhar.
17. **Mallaiah Mekala**, S.Srinath and Goli Venkat Reddy (2015), Optimization studies on the reactive distillation process for the production of methyl acetate, INCEEE-2015, March 20-21, 2015, NIT Warangal.
18. **Mallaiah Mekala**, and Goli Venkat Reddy (2015), Conceptual design and Simulation of Reactive Distillation for Comparison of Equilibrium and Non-equilibrium stage models, INCEEE-2015, March 20-21, 2015, NIT Warangal.
19. **Mallaiah Mekala**, and Goli Venkat Reddy (2014), Modeling and simulation of reactive distillation column for methyl acetate production in presence of ion-exchange resin catalyst, CHEMCON-2014, December 27-30, 2014, Punjab University.
20. **Mallaiah Mekala**, and Goli Venkat Reddy (2013), Modelling and Simulation of Reactive Distillation for the Esterification Process, ICCBPE-IN, 2013, November 16-17, 2013, NIT Warangal.
21. **Mallaiah Mekala**, and Goli Venkat Reddy (2013), Kinetic model for esterification of acetic acid -methanol with cat-ion-exchange resin as catalyst, MaCKiE- 2013, 2013, February 4-6, 2013, IIT Madras.
22. **Mallaiah Mekala**, and Goli Venkat Reddy (2012), Development of kinetic models for esterification reaction between methanol-acetic acid for Homogeneous and Heterogeneous catalysts, CHEMCON-2012, 2012, December 27-30, 2012, NIT Jalandhar.
23. **Mallaiah Mekala**, G.Uma Sankar and Ch. Venkateswarlu (2005), Dynamic modelling and inferential control of a continuous Packed Bed Reactive distillation Column, CHEMCON-2005, December 14-17, 2005, IIT Delhi.
24. **Mallaiah Mekala** (2002), Rejection of Nitrogen by using Membranes, TECHNOVISTA-2002, December 19-20, 2002, SVEC, Suryapet.

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