Curriculum Vitae

Dr. Madhusree Kundu
Professor
Department of Chemical Engineering
National Institute of Technology, Rourkela,
Orissa-769008, India
Ph No: 0661-2462263 (O), 3263 (Res), 919438076531, 8328829990 (mob)

E-mail: mkundu@nitrkl.ac.in, madhusreekundu1@gmail.com

Academic Qualifications:

Ph.D. Chemical Engineering, Cryogenic Engineering Centre, Indian Institute of Technology, Kharagpur, India.

M.Tech, Chemical Engineering, University of Calcutta.

B.Tech, Chemical Engineering, University of Calcutta.

Research Interest:

- Solution thermodynamics, phase equilibrium, and their applications (CO_2 mitigation by absorption, and green refrigeration).
- Application of Electrochemistry in the monitoring of water (Pesticide and Heavy metal detection and abatement in specific) and product quality.
- Machine earning /Chemometrics applications (Design of soft sensor, process fault detection/product quality monitoring/water quality monitoring)
- Waste Disposal (Household waste)
- Process Modelling and Simulation
- Process identification, monitoring & control (Fractional order Process)

Research/Academic Experience

2018 - Present	**Professor** Department of Chemical Engineering at National Institute of Technology Rourkela, Odisha
2009-2018	**Associate Professor** Department of Chemical Engineering at National Institute of Technology Rourkela, Odisha
2006-2009	**Assistant Professor** Department of Chemical Engineering at National Institute of Technology Rourkela, Odisha
2006 –2006	**Assistant Professor** Department of Chemical Engineering at Birla Institute of Technology and Science, Pilani
2004 –2006	**Lecturer** Department of Chemical Engineering at Birla Institute of Technology and Science, Pilani

Industrial Experience

1992 –1998	**Organization:** Simon Carves (India) Ltd. , Taratala, Kolkata, West Bengal **Designation:** Process Engineer

Professional recognition, awards, fellowships received:

- Recipient of **National Scholarship** awarded by Govt. of India
- **Best paper** award in 'Thermodynamics' at the CHEMCON 2001 International Conference held in Chennai, India, December 2001.

- **Best presentation** in 'Process simulation and modeling section' at the Indian Chemical Engineering Congress (CHEMCON 2002) held in Hyderabad, India, December 2002.

Professional Membership: Member of *The Indian Institute of Chemical Engineers* (M20984), *Institute of Engineers India* (M-155902-2 CH), and member of IEEE (M-99043077).

Research Credentials:

Google Scholar https://scholar.google.co.in/citations?user=QL3SRdEAAAAJ&hl=en

ORCID ID: orcid.org/0000-0001-9897-3094

h-index: 15

i10-index: 20

Scoupus ID – 7102095827

Research Gate: https://www.researchgate.net/profile/Madhusree-Kundu

SSRN: http://ssrn.com/author=1355227

LinkedIn: www.linkedin.com/in/madhusree-kundu-0188a1221

Personal webpage: https://www.nitrkl.ac.in/CH/~mkundu/

Patent: granted :1, filed: 1

1. Title: An Electronic Tongue based Arsenic Quantifier.
   Patent number: 451383 (Granted)
   Application number: 201831020756, dated 4/6/2018
   Patentee: Sujeevan Kumar Agir and Madhusree Kundu

2. Title: AN APPLIANCE FOR BIO-DEGRADABLE HOUSEHOLD WASTE DISPOSAL
   Application Number: 202331042517, dated 25/6/2023 (Filed)
   Docket No.: 19461
   Applicants: Satya Ranjan Panda, Madhusree Kundu, Basudeb Munshi

Book Published

- Madhusree Kundu, Palash Kundu, Seshu Kumar Damarla (2017).***A Chemometric Approach to Monitoring: Product Quality Assessment, Process Fault Detection and Miscellaneous Applications***, CRC Press, Taylor & Francis Group (Published 3 October, 2017) (https://www.crcpress.com/Chemometric-Monitoring-Product- Quality-Assessment-Process-Fault-Detection/Kundu-Kundu-Damarla/p/book/9781498780070). ISBN: 9781138746213

- Madhusree Kundu, Seshu Kumar Damarla (2018). ***Fractional Order Processes: Simulation, Identification, and Control***, CRC Press, Taylor & Francis Group (https://www.crcpress.com/Fractional-Order-Processes-Simulation-Identification-and-Control/Damarla-Kundu/p/book/9781138586741)

Book Chapters

- Shweta Dubey, S Chakraverty, M Kundu (2024). Taylor series expansion approach for solving fractional order heat-like and wave-like equations, January, 2024, Academy Press, pages 125-134.
- Bitan Pratihar, Madhusree Kundu (2022), Fuzzy Logic-Based Classification and Authentication of Beverages, Encyclopedia of Data Science and Machine Learning (chapter 119), October 2022, Publisher: IGI Global. DOI: 10.4018/978-1-7998-9220-5.ch119

- Yash Shah and **Madhusree Kundu** (2021). A Green and Sustainable Urban Dwelling: Proposition of A Hybrid Indicator, In the Handbook of Green Engineering Technologies for Sustainable Smart Cities. Editors: Krishnan and Shakthinathan, CRC Press, Taylor and Francis Group, (Chapter 3), pp: 3-19 (ISBN: 9781003093787). https://doi.org/10.1201/9781003093787.

- Palash Kundu and **Madhusree Kundu** (2021). Diagnostics and Decision Support for Cardiovascular System: A Tool Based on PPG Signature (Chapter 8). In the Disruptive Trends in Computer Aided Diagnosis, Edited By Rik Das, Sudarshan Nandy, Siddhartha Bhattacharyya, CRC Press, Taylor and Francis Group(ISBN 9780367493370). Date of Publication: Sep. 29th, 2021

- **Madhusree Kundu**, Bitan Dutta and S. S. Bandyopadhyay (2006), Removal of CO2 from natural gas: Vapour-liquid equilibrium of CO2 in aqueous solutions of *N*-methyldiethanolamine. Advances in Separation Processes, eds; S. S. Bandyopadhyay; A. K. Biswas; D. Dandyopadhyay and Asit K. Saha, Allied publishers, New Delhi, India (2007).

Sponsored research project

1. Funding agency: **Water Technology Initiative (WTI), Department of Science and Technology.**

   Principal investigator**: Dr. Madhusree Kundu**

   Sanction letter NO: and date under which the assistance was approved: **DST/TM/WTI/2K11/328, dated 11.06.2012**

   Title: E-Tongue based detection and estimation of arsenic in contaminated water

   Status: Completion report submitted

2. Funding agency: **Ministry of Science and Technology, Department of Science and Technology, under SERC Fast Track scheme for Young Scientists**

   Principal investigator**: Dr. Madhusree Kundu**

   Sanction letter NO: and date under which the assistance was approved: **SR/FTP/ETA-08/2005, dated March 08, 2005.**

   Title: *Purification of natural gas: Vapour-liquid equilibrium of carbon dioxide and hydrogen sulfide into aqueous blends of alkanolamines*

   Status: C**ompleted and final report submitted**

3. Funding agency: **The Institution of Engineers (India), Grant-in- Aid in support of industry-oriented R&D projects.**
   Principal investigator**: Dr. Madhusree Kundu**

   Co-investigator: **Shitharashmi sahu**

   Sanction letter NO: and date under which the assistance was approved: **SCK/T-R&D/53 /2008-09, dated 25th November, 2008.**

   Title: *Bioleaching of Nickel from low-grade ores and concentrates*

   Status: C**ompleted and final report submitted**

4. Funding agency: **The Institution of Chemical Engineers**

   Title of the Project: *Development of an Economic Appliance for Household Waste Disposal*

   Principal investigator**: Dr. Madhusree Kundu**

   Co-investigator: **Dr. Basudeb Munshi**

   Sanction letter NO: SKD/C-2/2018/717 dated 31.8.2018

5. Funding Agency: SERB, DST under MATRICS Initiative

   Title: Novel numerical methods for fractional order systems simulation.

   Principal investigator**: Dr. Madhusree Kundu**

MTR/2019/000612, Dated: 21-Feb-2020

6. **Funding Agency: SERB Power Grant (Ongoing)**

   Title: Design of Soft Multi-Function Sensor Based on Electrochemical Parameters

   Amount: 2689500 INR

   Principal investigator**: Dr. Madhusree Kundu**

   SPG/2020/000526, **Dated: March -2021**

Publications in refereed journals

- AK Pathak, **M Kundu** (2025). Development of a multifunction soft sensor for a chemical reaction process using impedimetric parameters. Ionics, November 2025, https://doi.org/10.1007/s11581-025-06834-9.

- Ashirbad Khuntia, Madhusree Kundu, Kamalakanta Mahapatra (2025). Electrochemical sensor development for detecting organophosphate pesticide using CuO nanograss electrode, The Canadian Journal of Chemical Engineering Volume103, Issue1, Pages 251-263. https://doi.org/10.1002/cjce.25366

- A. K. Pathak, **M Kundu** (2025). Esterification of acetic acid with butanol: kinetic study and fuzzy modelling using electrochemical parameters. International Journal of Chemical Reactor Engineering, 23(3), 341-351.

- Ashirbad Khuntia, **Madhusree Kundu** Kamalakanta Mahapatra, Adhidesh Kumawat (2025). An Electrochemical Detection of Malathion Pesticide Using Cu Electrode and Enhanced by Machine Learning.Chemical Engineering Technology, 48 (6). e70036

- Seshu Kumar, Damarla, **M Kundu** (2025). Novel Hybrid Function Operational Matrices of Fractional Integration: An Application for Solving Multi-Order Fractional Differential Equations. Applied Math 5(2):55

- Seshu Kumar, Damarla, **M Kundu** (2025). A Unified Framework Using Orthogonal Hybrid Functions for Solving Linear and Nonlinear Fractional Differential Systems. *AppliedMath* **2025**, *5*(4), 153; https://doi.org/10.3390/appliedmath5040153

- AK Pathak, **M Kundu** (2024).Esterification of butyric acid with n-butanol: Kinetic study using experimental data and modeling, International Journal of Chemical Kinetics 56 (4), 188-198.

- R Chandra, **M Kundu** (2024),Classification and authentication of operating conditions in different processes using Partial Least Squares, Chemical Product and Process Modeling 19 (1), 135-145.

- S Dubey, S Chakraverty, **M Kundu** (2023)- Approximate solutions of space and time fractional telegraph equations using Taylor series expansion method. Journal of Computational Analysis & Applications, vol.31, 2023.

- **Madhusree Kundu**. Ashirbad Khuntia, Adhidesh S Kumawat (2022). Detection of pesticide using **Cu-rgo** modified electrochemical sensor. Materials today proceedings vol. (62), 6227-6231. https://doi.org/10.1016/j.matpr.2022.05.103

- **Kundu, M.,** and S. Adak (2020). CO_2 Capture Using Aqueous 1-(2-Hydroxyethyl) Piperidine and its Blends with Piperazine: Solubility and Enthalpy. Journal of Fluid Phase Equilibria, Vol. 509, 112463.https://doi.org/10.1016/j.fluid.2020.112463.

- **Kundu, M.,** and Damarla, Seshu, K. (2020). Piecewise linear approximate solution of fractional order non-stiff and stiff differential-algebraic equations by orthogonal hybrid functions based numerical method. Progr. Fract. Differ. Appl.6, No. 3, 183-200 (2020)

- **Kundu, M.,** and Damarla, Seshu, K. (2018). New orthogonal hybrid function based numerical method to solve system of fractional order differential equations. arXiv preprint arXiv:1801.06972.

- **Kundu, M.,** and Damarla, Seshu, K. (2018). Novel hybrid function operational matrices of fractional integration: An application for solving multi-order fractional differential equations. arXiv preprint arXiv:1801.06973.

- Kundu, M., Sikdar, S. (2017). A Review on Detection and Abatement of Heavy Metals. *ChemBioEng.Reviews,* Vol. 4,No.6,1–13(DOI: 10.1002/cben.201700005).

- Kundu M. (2017). The Changing Paradigm in Sour Gas Treating Processes. *Recent Advances in Petrochemical Science (RAPSCI),* Vol. 3(2), (RAPSCI.MS.ID.555608 (2017)).

- **Kundu, M.,** and S. Adak.Vapour-liquid equilibrium and physicochemical properties of novel aqueous blends of (2-Diethylaminoethanol+ Piperazine) for CO_2appropriation. *Journal of Chemical & Engineering Data,***2017**, *62* (7), pp 1937–1947.DOI: 10.1021/acs.jced.6b00856

- **Kundu, M.,** and Damarla, Seshu, K. (2017). Generalized mathematical model of chronic Hepatitis C infection, Journal of Fractional Calculus and Applications. Vol. 8(2), pp. 1-19 (DOI: 10.1515/fca-2015-0074).

- Das, Sougat and **Kundu, M.** (2016). Performance of Hydrocarbon Based Mixed Refrigerants in Cryocoolers. International Journal of Engineering Trends and Technology (IJETT), Vol. 41(4), 170-174. (November 2016. ISSN: 2231-5381, DOI: 10.14445/22315381/IJETT-V41P232).

- Sougat Das and **Madhusree Kundu** (2016). Evaluation of Green Refrigerant Performance for VCR. International Journal of new Technologies in Science and Engineering (IJNTSE).Vol. 3(12), 26-34. (December 2016, ISSN 2349-0780) (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.,** and Damarla, Seshu, K. (2015). Design of robust fractional PID controller using triangular strip operational matrices, Fractional Calculus and Applied Analysis, Vol. 18(5), 1291-1326 (DOI: 10.1515/fca-2015-0074).

- **Kundu, M.** and Damarla, Seshu, K. (2015). Numerical solution of multi-order fractional differential equations using generalized triangular function operational matrices, Applied Mathematics and Computation, Vol. 263, 189 – 203 (DOI: 10.1016/j.amc.2015.04.051).

- **Kundu, M.,** and Damarla, Seshu, K. (2015). Numerical solution of fractional order differential-algebraic equations using generalized triangular operational matrices, Journal of Fractional Calculus and Applications, Vol. 6 (2), 31 – 52 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.,** and Damarla, Seshu, K. (2014). Approximate solution of nonlinear fractional order biochemical reaction model by multistage new iterative method, Journal of Fractional Calculus and Applications, Vol. 5 (2), 107 – 120 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.,** Kumar, G. (2013) Vapor−Liquid Equilibrium of CO_2 in Aqueous Blends of (N-Ethyl- ethanolamine + N-Methyl-diethanolamine) and (N-Ethyl- ethanolamine + 2-Amino-2-methyl-1-propanol). *Journal of Chemical & Engineering Data,* vol. 58, 2959-2965 (DOI: 10.1021/je4004492).

- **Kundu, M.,** and Kundu Palash (2013). The e-tongue-based classification and authentication of mineral water samples using cross-correlation-based PCA and Sammon'snonlinear mapping. *Journal of Chemometrics,* vol. 27(11), 379-393.(DOI: 10.1002/cem.2521)

- **Kundu, M.,** Mondal, T., Kumar, G. (2012) Solubility of CO_2 in Newer Blends of (Diethanolamine + 2-amino-2-methyl-1-propanol) and (Diethanolamine + *N*-methyldiethanolamine), *Journal of Chemical & Engineering Data*, Vol. 57(3), 670-680 (DOI: 10.1021/je200647j).

- **Kundu, M.,** Kumar, G. (2012) Solubility of CO_2 in Aqueous Blends of (N-Methyl-2-ethanolamine + N-Methyl-diethanolamine) and (N-Methyl-2-ethanolamine + 2-Amino-2-methyl-1-propanol) , *Journal of Chemical & Engineering Data*, Vol. 57, 3203-3209 (DOI: 10.1021/je300797k).

- **Kundu, M.,** and Damarla, Seshu, K. (2013). Control of Yeast Fermentation Bioreactor in Subspace, *International Journal of Computer Applications*, Vol. 64 (5), 13 – 20 (DOOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja, 10.1.1.278.4924).

- **Kundu, M.,** and Damarla, Seshu, K. (2013). Decoupling Multivariable Processes using Partial Least Squares for Decentralized Control, *International Journal of Computer Applications*, Vol. 64 (5), 5-12 (DOI: 10.1.1.278.6188).

- **Kundu, M.,** P. Pancharya, and Kundu Palash (2011). Classification & Authentication of Unknown Water Sample Using Machine Learning Algorithms. *ISA Transactions,* Vol. 50,487-495 (DOI: 10.1016/j.isatra.2011.03.003).

- Diamond Das and **Madhusree Kundu** (2011) Identification of Algal Biomass Production with Partial Least Squares & Neural Network. *International Journal of Chemical Engineering and Applications* vol. 2(4), pp. 295-300 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Sahu, S., Kavuri, C. and **Kundu, M.** (2011). Dissolution kinetics of Nickel laterite ore using different secondary metabolic acids. *Brazilian Journal of Chemical Engineering,*Vol. 28 (2), 251-258 (DOI: 10.1590/S0104-66322011000200009).

- **Kundu, M.,** and Damarla, Seshu, K. (2011). Identification and Control of Distillation Process using Partial least squares based Artificial Neural Network*, International Journal of Computer Applications*. Vol. 29 (7), 29-35 (DOI: 10.5120/3576-4936).

- **Kundu, M.,** and Kavuri, Naga, C. (2011). Application of ART1 network for wine classification. *International Journal of Chemical Engineering and Applications*. Vol. 2 (3), 189-195 (DOI: 10.7763/IJCEA.2011.V2.100).

- **Kundu, M.,** and Damarla, Seshu, K. (2011). *Monitoring of Drum-boiler Process Using Statistical Techniques, International Journal of Chemical Engineering and Applications*. Vol. 2 (3), 173-180 (DOI: 10.7763/IJCEA.2011.V2.97).

- **Kundu, M.,** and Damarla, Seshu, K (2011). *Monitoring of Bioreactor Using Statistical Techniques, Research Journal of Chemical Science*. Vol. 1 (3), 114-119 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.,** Kumar, G. (2012). Vapour–Liquid Equilibrium of CO_2in Aqueous Solutions of N–Methyl–2– ethanolamine, *Canadian Journal of Chemical Engineering,* Vol. 90, 627-630 (DOI: 10.1002/cjce.20598).

- **Kundu, M.,** and Damarla, Seshu, K. (2010). Design of Multivariable Neural Controllers Using A Classical Approach. *International Journal of Chemical Engineering and Applications*. Vol.1 (2), 165-172, ISSN: 2010-0221 (DOI: 10.7763/IJCEA.2010.V1.29).

- **Kundu, M.,** Venkat, A., Kumar, G. (2010). Density and Surface Tension of Aqueous Solutions of (2-(Methylamino) ethanol +2-Amino-2-methyl-1-propanol) from (298 to 323) K. *Journal of Chemical & Engineering Data*, Vol. 55 (11), 4864–4871 (DOI: 10.1021/je1002626).

- **Kundu, M.,** and Kavuri, Naga, C. (2010). Application of probabilistic neural network for wine classification. *International Electronic Engineering Mathematical Society*, Vol. (5), 1-8. ISSN: 1687-787X.

- Vamsee, K. A., Maiti, D., **Kundu, M.** (2009). Simulation and analysis for flow through micro channel. *Asia-Pacific Journal of Chemical Engineering,* Vol. 4, 450-461 (DOI: 10.1002/apj.232).

- Kavuri, C., Sahu, S., and **Kundu, M.** (2009). Bioleaching of Zinc Sulphide Ore Using Thiobacillus Ferrooxidans: Screening of Design Parameters Using Statistical Design of Experiments. *The Icfai University Journal of Chemical Engineering*, vol. 1, 44-59.

- **Kundu, M.**, Chitturi, A., Bandyopadhyay, S. S. (2008). Prediction of equilibrium solubility of CO2 in aqueous alkanolamines through differential evolution algorithm. *Canadian Journal of Chemical Engineering*, vol. 86 (1), 117-126 (DOI: 10.1002/cjce.20008).

- **Kundu, M.**, and Bandyopadhyay, S.S. (2007). Thermodynamics of alkanolaminewater system. *Chem. Eng. Comm*, vol. 194(9), 1138 – 1159 (DOI: 10.1080/00986440701244341).

- **Kundu, M.**, Bandyopadhyay, S.S. (2006). Vapour – liquid equilibrium of CO_2 in aqueous blends of DEA/AMP. *Journal of Chemical and Engineering Data*, vol. 51(2), 398-405 (DOI: 10.1021/je050311v).

- **Kundu, M.**, and Bandyopadhyay, S.S. (2006). Correlation and prediction of the solubility of CO2 in Water +Diethanolamine + N-methyldithanolamine. *Fluid Phase Equilibria*, Fluid Phase Equilibria, vol. 248 (2), 158-167 (DOI: 10.1016/j.fluid.2006.08.001).

- Kundu, M., and Bandyopadhyay, S.S. (2005). Modelling Vapour – liquid equilibrium of CO2 in aqueous N-Methyldiethanolamine through the simulated annealing algorithm. *Canadian Journal of Chemical Engineering*, vol. 83 (2), 344-353 (DOI: 10.1002/cjce.5450830222).

- Mandal, B.P., **Kundu, M.**, and Bandyopadhyay, S.S. (2005). Physical solubility and diffusivity of N2O and CO2 into aqueous solutions of (2-amino-2-methyl-1-propanol + monoethanolamine) and (N-methyldiethanolamine + monoethanolamine). *Journal of Chemical and Engineering Data*, vol. 50(2), 352-358 (DOI: 10.1021/je049826x).

- Mandal, B.P., **Kundu, M.**, Padhiyar, N.U., and Bandyopadhyay, S.S. (2004). Physical solubility and diffusivity of N2O and CO2 into aqueous solutions of (2-amino-2- methyl-1-propanol + diethanolamine) and (N-methyldiethanolamine + diethanolamine). *Journal of Chemical and Engineering Data*, 4vol. 9, 264-270 (DOI: 10.1021/je0301951).

- **Kundu, M.**, Mandal, B.P. and Bandyopadhyay, S.S. (2003). Vapour-liquid equilibria of CO2 in aqueous solutions of 2-amino-2-methyl-1-propanol. *Journal of Chemical and Engineering Data*, vol. 48(4), 789-796 (DOI: 10.1021/je0201626).

- Mandal, B.P., **Kundu, M.** and Bandyopadhyay, S.S. (2003). Density and viscosity of aqueous solutions of (N-Methyldiethanolamine + Monoethanolamine), (Nmethyldiethanolamine + Diethanolamine), (2-Amino-2methyl-1-propanol + Monoethanolamine) and (2-Amino-2methyl-1-propanol + Diethanolamine). *Journal of Chemical and Engineering Data*, vol. 48, 703-707 (DOI: 10.1021/je020206a).

Major conference papers…

- A. Pathak and **M. Kundu** (2023). A substantial agricultural framework: Development of Fuzzy based decision support tool. In the proceedings of Chemcon 2023, date 27-30 December, held in Kolkata.

- A. Pathak and **M. Kundu** (2024). Prediction of reactant concentration in batch reactor through soft sensor using electrochemical parameters, in the proceedings of SDCEE-2024, dated 22-24 February at Thapar Institute of Engineering & Technology Patiala.

- Ashirbad Khuntia, **Madhusree Kundu**, Kamalakanta Mahapatra, Adhidesh Kumawat (2024). An Investigation for Malathion Pesticide Detection Using Pure Cu Electrode Leading to Electrochemical Sensor. In the proceedings of SDCEE-2024, dated 22-24 February at Thapar Institute of Engineering & Technology Patiala

- ShwetaDubey M.Kundu, S.Chakraverty (2023). Application of Block Pulse Function in Simulating System of Differential Equations, accepted for oral presentation in ICFDA23, Ajman University, UAE.

- **Kundu, M.**, and Athul KR. (2021) Application of triangular orthogonal function in chemical process simulation. In the Proceedings of 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI) held on January 8-10, *2021*, Kolkata, Pages 116-121. (DOI: 10.1109/CMI50323.?2021.9362973)

- Seshu Damarla (University of Alberta), Xiuli Zhu (Donghua University) and **Madhusree Kundu** (National Institute of Technology Rourkela)Classification and Authentication of Mineral Water Samples using Electronic Tongue and Deep Neural Networks, , 2021 IEEE Third International Conference on Cognitive Machine Intelligence (CogMI), DEC 13-15, 2021.DOI 10.1109/CogMI52975.2021.00011

- **Kundu, M.**, and Damarla, Seshu, K. (2020). Classification of Tea Samples using Learning Vector Quantization Neural Network. In the 2nd IEEE Conference on Applied Signal Processing, *ASPCON 2020 held on 7-9 October 2020, Kolkata, India. (DOI:* 10.1109/ASPCON49795.2020.9276662)

- **Kundu, M.,** and Shubhashis Adak (2021). Regeneration of CO_2 Loaded 2-(Diethylamino)ethanol using Organic Solvent and Waste Heat. In the proceedings of 9th Jordan International Chemical Engineering Conference, *JIChEC09 held on 12-14 October 2021 Amman, Jordan*
- **Kundu M.,** Pratihar Bitan (2019). Classification and Prediction of Cardiovascular Autonomic Neuropathy severity using Fuzzy Logic-Based Expert System.In the proceedings of IEEE sponsored International Conference onTENSYMP, 2019 held on June 7-9. 2019 Kolkata, India.https://doi.org/10.1109/TENSYMP46218.2019.8971285
- **Kundu M.,** Kundu P. (2016). Classification of Tea Samples Using SVM as Machine Learning Component of E-Tongue, In the proceedings of IEEE sponsored International Conference on Intelligent Control, Power and instrumentation (ICICPI-2016) held during October 21-23, 2016, Kolkata, India (DOI: 10.1109/ICICPI.2016.7859673).
- S. Adak and **M. Kundu** (2016). CO_2 Capture Using Novel (Trisodium Salt of Nitrilotriacetic acid +Piperazine) Blend. In the proceedings of Chemcon 2016, held during 27-30 December 2016 at Chennai, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).
- **Kundu M.,** Agir, S. K. (2016). Detection and Quantification of Arsenic in Water Using Electronic Tongue, In the proceedings of IEEE sponsored International Conference on Control, measurement and instrumentation (CMI-16) held during January, 8-10, 2016, Kolkata, India (DOI: 10.1109/CMI.2016.7413783).
- **Kundu, M.,** Aparna, M (2014), MONITORING OF CONTINUOUS CRYSTALLIZATION PROCESS, In the proceedings of IEEE sponsored International Conference on Control, Instrumentation, Communication and Computational Technologies-2014 (ICCICCT-2014) held during 10-11 July 2014 at the Noorul Islam University, Kumaracoil, Kanyakumari District, Tamilnadu, India (DOI: 978-1-4799-4190-2/14/$31.00 ©2014 IEEE).
- **Kundu, M.,** Kundu Palash (2012). A comparative study on tea samples classification by E-Tongue using Cross correlation based PCA , PCA and Shamon's Nonlinear mapping method, In theproceedings of *ICECE 2012*, IEEE sponsored International conference held during 20-22 December 2012, Dhaka, Bangladesh (DOI: 10.1109/ICECE.2012.6471594).
- Chaitanya Kavuri and Madhusree Kundu(2012). Biodegradation of Phenol: Identification and Monitoring. In the proceedings of International conference on modeling and simulation (ICMS-2012) held at Zurich, Switzerland July 5-6, 2012. World Academy of Science, Engineering and Technology 67, pp. 477-483 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).
- Kundu, M., and Damarla, Seshu, K. (2012). Monitoring Semi-Batch Reactor Using Principal Component Analysis, In the proceedings of IEEE sponsored International conference on Emerging trends in electrical engineering and energy management (ICETEEEM-2012), held on 13-15 December 2012 at Aarupadai Veedu Institute of Technology, Tamilnadu, India (DOI: 10.1109/ICETEEEM.2012.6494434).

- Kundu, M., and Damarla, Seshu, K. (2012). Online monitoring of Chromium Sludge Recycling Process using Recursive MPCA. In the proceedings of IEEE sponsored International conference on emerging trends in electrical engineering and energy management (ICETEEEM-2012) held on 13-15 December 2012 at Aarupadai Veedu Institute of Technology, Tamilnadu, India (DOI: 10.1109/ICETEEEM.2012.6494435).

- **Kundu, M.**, Kundu Palash (2011). E-Tongue Based Classification and Authentication of Mineral Water Samples Following Principal Component Analysis and Sammon's Nonlinear Mapping, In the proceedings of *ICCIA*-2011, IEEE sponsored international conference held during 26-28 December 2011, Kolkata, India (DOI: 10.1109/ICCIndA.2011.6146649).

- **Kundu, M.**, and Damarla, Seshu, K. (2011). Clustering multivariate time series data: Application in process monitoring. Presented in the International conference on 'Mathematical Modeling and Applications to Industrial Problems" held on 28-31 March 2011 at NIT Calicut, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.**, and Damarla, Seshu, K. (2011). PLS & NNPLS Based Identification and Control of Distillation Process. . Accepted for oral presentation in the International Conference on Process Automation, Control and Computing (PACC 2011), to be held on 20 Jul - 22 Jul 2011 at Coimbatore Institute of Technology (CIT) Coimbatore, Tamilnadu, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Madhusree Kundu**,and Chaitanya Kavuri(2010). Application of multivariate statistics in wine quality monitoring & control. In the proceedings of International conference on Challenges and applications of Mathematics in Science and Technology (*CAMIST 2010*) at Rourkela, Orissa, India from January 11-13, 2010. Macmillan Publisher India Ltd. New Delhi, India. ISBN: 10: 0230-32875-X.

- K.S. Kaushikaram, Seshu. K. Damarla, **Madhusree Kundu**(2010). Design of neural controllers for various configurations of continuous bioreactor. In the proceedings of International conference on System Dynamics and Control *(ICSDC 2010)* held on 19-22 August 2010 at Manipal University, Karnataka, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- K.S. Kaushikaram, Seshu. K. Damarla, C. Kavuri, &**Madhusree Kundu** (2010). Partial least squares: Application in classification and multivariable process dynamics identification. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2010*), held on 27-29 December 2010 at Annamalai University, Chidambaram, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Sahu, S., Kavuri, C. and **Kundu, M.** (2009). Development of microbial process for biobeneficiation of lowgrade iron oreusing heterotrophic microorganisms. In the proceedings of *WEEMMI – 2009* at Bhubaneswar, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Majumder, S. and **Kundu, M**. (2007). Prediction of equilibrium solubility of CO_2 in aqueous piperazine through artificial neural network. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2007*), at Kolkata, India (DOI: cholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- R. Rajesh, Chattopadhyay, S., **Kundu, M**. (2006). Prediction of equilibrium solubility of CO_2 in aqueous alkanolamines through artificial neural network. In the proceedings of *CHEMECA'06*, at Auckland, New Zealand from 17-20 September 2006 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Chitturi, A., Chattopadhyay, S., **Kundu, M**. (2006). Prediction of equilibrium solubility of CO_2 in aqueous alkanolamines through differential evolution algorithm. In the proceedings of *CHEMECA'06*, at Auckland, New Zealand from 17-20 September 2006 (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Chitturi, A. and **Kundu, M**. (2006). Application of differential evolution algorithm in VLE of CO_2 over aqueous 2-amino-2-methyl-1-propanol solution. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2006*),), held at Dec 27-30, 2006, *Ankleshwar*, Gujarat (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Chitturi, A. and **Kundu, M**. (2006). Modeling vapour-liquid equilibrium of CO_2 over aqueous piperizine solution In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2006*), held at Dec 27-30, 2006, *Ankleshwar*, Gujarat (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.**, and Bandyopadhyay S.S. (2005). Modeling vapour-liquid equilibrium of CO_2 in aqueous blends of diethanolamine and N-methyldiethanolamine. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2005*), at Delhi, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Ravi Parimi and **Kundu, M**. (2005). Modeling dense perovskite membrane reactor for partial oxidation of methane to syngas. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2005*), at Delhi, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Madhusree Kundu** and Bandyopadhyay, S. S. (2003). Removal of CO_2 from natural gas: Vapour-liquid equilibrium and enthalpy of solution for absorption of CO_2 in aqueous diethanolamine. In the proceedings of International Conference on '*Advances in Petrochemicals and Polymers in the New Millennium*', held on 22 July – 25 July, at Bangkok, Thailand (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=jam).

- **Kundu, M.**, and Bandyopadhyay S.S. (2003). An electrolyte model for CO_2 solubility in aqueous blends of diethanolamine and 2-amino-2-methyl-1-propanol. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2003*), at Bhubaneswar, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.**, Mandal, B.P., and Bandyopadhyay, S.S. (2002). Vapour-liquid equilibria of CO_2 in aqueous solutions of 2-amino-2-methyl-1-propanol. In the proceedings of the 9 th Asian Pacific Congress of Chemical Engineering (*APCChE 2002*), held on 29 September – 3 October 2002, at Christchurch, New Zealand (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Madhusree Kundu** and Bandyopadhyay, S. S. (2002). A comparative study of deterministic and probabilistic algorithms for predicting vapour- liquid equilibria of CO_2 – AMP - water system. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2002*), held on 19 – 22 December, at Hyderabad, India (DOI: cholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Madhusree Kundu** and Bandyopadhyay, S. S. (2002). Vapour-liquid equilibrium of H_2S in aqueous solutions of N-methyldiethanolamine. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON-2002*), held on 19 – 22 December, Hyderabad, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M**. Mandal, B.P., and Bandyopadhyay, S.S. (2001). Solubility of CO_2 in aqueous methyldiethanolamine. In the proceedings of *CHEMCON 2001* International conference, held on 19 – 22 December, at Chennai, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- Mandal, B.P., **Kundu, M**. and Bandyopadhyay, S.S. (2001). Density and viscosity of aqueous solutions of MDEA+MEA over the temperature range 20 – 50^0 C. In the proceedings of *CHEMCON 2001* International Conference, held on December, at Chennai, India (DOI: scholar.google.com/citations?user=QL3SRdEAAAAJ&hl=ja).

- **Kundu, M.**, Chouhan, P., Biswas, A.K., and Bandyopadhyay S.S. (2000). Removal of CO_2 from natural and industrial gas streams: Modelling of vapour-liquid equilibrium for CO_2 in alkanolamines. In the proceedings of "Petroleum Refining and Petrochemical based Industries in Eastern India" (*PETCON 2000*), held on 1-2 July, 2000, at Kharagpur

- **Kundu, M.**, Adhikari, P., Biswas, A.K., and Bandyopadhyay S.S. (2000). Modelling of vapour-liquid equilibrium for CO_2 over aqueous MEA, DEA, MDEA, and AMP. In the proceedings of Indian Chemical Engineering Congress (*CHEMCON- 2000*), held on December, at Calcutta, India.

Invited Talks

- **Event:** Session Chair cum Keynote address at CHEMCON 2015 during 27-30 December at IIT Guwahati, India.
  Topic:*Arsenic contamination of ground water and its detection*

- **Event:** Faculty Development Programme on Advanced Optimization Techniques (AOT-2018). Organizer: Jointly organized by Electronics & ICT Academy and MNIT Jaipur, Academy, Prabha Bhawan, MNIT Jaipur, **Duration**: October 12 - 21, 2018. Sponsored by: Department of Electronics and Instrumentation Technology, Ministry of Communication and Information Technology, Government of India.
  Topic*: Overview of Statistical Methods and Application in Process Monitoring, Introduction to Fuzzy Sets, Fuzzy Logic Controller and Fuzzy Clustering*.
  .
- **Event:** Workshop On Modeling, Simulation and Data Analysis for Experimental Research (MSDAER - 2019) Organized by Department of Chemical Engineering, Veer Surendra Sai University of Technology Siddhi Vihar, Burla, Odisha – 768018, India. Duration: 28th Jan-1st Feb 2019, Sponsored by: TEQIP-III
  Topic: *Data Based modeling and process monitoring using MATLAB. TEQIP –III sponsored workshop on Modeling, Simulation and Data Analysis for Experimental Research*

- **Event:** Short term training On Emerging Research trends in Chemical and Environmental Engineering. Organized by Department of Chemical Engineering, NIT Raipur, Chhattishgarh- 492010, India. Duration: 6 th Jan-10 th May 2019
  Topic:*Environmental Monitoring: Monitoring water bodies contaminated with heavy metals and persistent organic pollutant (POP*).

  Event: Faculty Development Programme on Thermodynamics Laboratory for Undergraduates, on 14th-19th December 2020, organized by Department of Chemical Engineering under School of Engineering & Technology, GIET University, Gunupur, Odisha. Sponsored by: AICTE sponsored Short Term Training Program (STTP)
  Topic:*Carbon Capture and Fluid Phase Equilibrium*

- **Event:** Faculty Development Programme on RECENT ADVANCES IN CHEMICAL ENGINEEERING 2020 (RACE-2020), organized by Department of Chemical Engineering, INDIRA GANDHI INSTITUTE OF TECHNOLOGY SARANG ODISHA, Date 14th Dec to 18th Dec 2020, TEQIP III SPONSORED
  Topic: *Fractional order PID Controllers: Design and Implementation*

- **Event:** Short term training programme on Application of *Artificial Intelligence (AI) in Environmental and Process Engineering,* CSIR-NIIST, Thiruvananthapuram,8th March to 11th March 2021
  Topic: *Application of Support Vector Machine and Decision Directed Acyclic Graph in Multiclass Classification (2021)*

- **Event:** *Indo Canadian Research Conclave on Sustainable Approaches to Carbon Capture Sequestration and Utilization (ICRC-CCSU), 12-13 March 2021*
  Topic: *A changing Paradigm in CO_2 Abatement Through Absorption: Solvent Selection and Regeneration*

- **Event:** AICTE Training and Learning (ATAL) Academy Online Faculty Development Programme (FDP). "Carbon Capture, Utilization and Storage: Opportunities and Challenges" from 13/12/2021 to 17/12/2021 at GOVERNMENT ENGINEERING COLLEGE KOZHIKODE
  Topic: **Exploration of Novel Solvents in Gas Treating Process.**

- **Event:** Recent Advances in Modeling and Simulation Techniques in Engineering and Sciences (RAMSTES-2021) on December 8-10, 2021, at Manipal University, Jaipur.
  Topic: *Adaptation of Block Pulse Function and Fractional Order Description of Dynamic Process in Simulation and Control.*

- **Event: International conference on sustainability: integrated and scientific approach (ICS 2022)**, University of Mumbai, from August 4-6, 2022.
  Topic: **Blend of Digitized and Sustainable Agriculture is a Panache.**

  Event: MALAVIYA MISSION TEACHER TRAINING PROGRAMME (MMTTP, 2025) on "Advances in Carbon Capture and Utilization Technologies: Bridging Science and Practice", from 27.10.2025 to .11.2025
  Topic: Post Combustion CO_2 Capture: Subtle Thermodynamic Feats of Structurally Advantageous Amines and Amino Acid Solvents

Ph. D Supervised:

1. Vapour-liquid Equilibrium of Carbon Dioxide in Newly Proposed Blends of Alkanolamines, Gaurav Kumar (509CH103), 2013.

2. Devising Numerical Methods for Simulation, Identification and Control of Fractional Order Processes, D. Seshu Kumar (Roll Number: 511CH113), 2018.
3. E-tongue based detection and quantitation of arsenic in contaminated drinking water, Sujeevan Kumar Agir (Roll No. 512CH6010), 2019.
4. Post combustion carbon dioxide capture: exploration of prospective solvents, Shubhashis Adak (513CH1069) 2021.
5. Development of Graphene-Based Multi-Modal Piezoresistive Sensors for Human Health and Fruit Growth Monitoring, Ravi Prakash Verma [518CH1004] 2024.
6. Numerical and Semi Analytical Solutions of Applied Fractional Differential Equations, SHWETA DUBEY (RollNo: 519MA1019), 2025

Ph.D supervision On-going:4

M.Tech. Thesis Supervised:

BITS Pilani

1. Vapour-liquid equilibrium of CO_2: Application of differential evolution algorithm in parameter estimation: Tejaswini Kulkarni (ID NO: 2003H101404), 2005.
2. Modelling and simulation of industrial multiple effect evaporator: P. Sarita (ID NO: 2003H101409), 2005.
3. Application of differential evolution (DE) algorithm in predicting VLE of CO_2 Over N-methyl diethanolamine, 2-amino-2-methyl-1-propanol and modelling the VLE of CO_2 in aqueous Piperazine solution: Chitturi Anil (ID NO: 2004H101001),2006.
4. Application of ANN in modeling vapour-liquid equilibria of acid gas-alkanolamine solution: Saptarshi Chattopadhyay (ID NO: 2004H101005), BITS PIlani,2006.

NIT Rourkela

5. Phase Equilibrium Modeling in Gas Purification System: Tarun Kumar Mondal (ID NO:207CH106), 2009.
6. Multivariable statistical Process Monitoring and Control: D. Seshu Kunar, (209CH1052), 2011.
7. Design of controller in state Space: Application in chemical process Rakhi Soni, (210ch1205) 2012.
8. Application of LQR and MPC on Distillation and Batch Crystallization Process, Sagar, B. (211CH1256), 2013.
9. Classification of Flow Regimes Using Linear Discriminant Analysis (LDA) and Support Vector Machine (SVM). Anil K. Singh (211CH1040), 2013.
10. Studies on crystallization process; monitoring and control, Aparna M. (212CH1072), 2014.
11. Screening of solvents for carbon dioxide absorption in ionic liquids using cosmotherm, Hit Selsha (212CH1070), 2014.
12. Simulation of continuous stirred tank reactors (cstr's) using orthogonal functions, KAMESWARI MANI PRIYANKA NEMANI (Roll No: 213CH1125), 2015.
13. Liquid-Liquid Equilibrium Studies on Extraction of Commercially Significant Carboxylic Acids, Chitra Das (Roll No. 710CH1151), 2015.

14. Control of Plantwide Processes using Fractional Order Controller, Soumya Ranjan Sahoo (Roll No. 711CH1025), 2016.
15. Design of Optimal Controllers using Block Pulse function, BVS Vaibhav (Roll No.214CH1107), 2016.
16. Carbon Dioxide Appropriation Using Alkanolamine Blends: Vapor-Liquid Equilibrium Modelling Approach, Vaibhav Kulkarni (Roll No. 214CH1100), 2016.
17. Qualitative Fault Detection and Diagnosis in Chemical and Plant-Wide Processes, Gangotri Rai (215CH1051), 2017.
18. Proposition of Novel Refrigerants in Various Cooling Devices, Sougat Das ((215CH1045), 2017.
19. Modelling CO_2 vapor-liquid equilibria over MDEA solvent using e-NRTL. Subhadip Mitra (216 CH1101) 2018.
20. Fuzzy logic-based systems' design, Bitan Pratihar (217CH1078) 2019.
21. Solution of linear and non-linear ode systems and system identification of jacketed cstr using triangular orthogonal function. Athul Krishnan T R (714CH1115) 2019.
22. Soft sensor design for industrial projects using ANN and multivariate statistics. SanthoshRajapandian (715CH1046),2020.
23. Effects of caffeinated beverage consumption on electrocardiographic parameters among healthy adults. Romani Sahu (715CH1050), 2020
24. Development of Forecasting Tool for Pandemic and its Impact. Boddepalli Ramya(716CH1024), 2021.
25. Process identification and simulation using block pulse functions. .Ankit Kumar Ladha (Roll no: 717CH1007, 2022)
26. Fault Detection and Process Identification of Different Chemical Processes using Machine Learning. RUBAL CHANDRA (Roll no. 718CH1004)
27. PHOTOCATALYTIC DEGRADATION OF rGO/ZnO nanocomposite on MALATHION and comparison with Activated Carbon/ ZnO nanocomposite. KUDAMA SAI CHARAN (Roll No. 222CH1063)
28. Determination of Reaction Rate and Control of Esterification Process. CHINMAYEE SETHI (Roll No. 223CH1407)
29. Removal of Carbendazim using Reduced Graphene Oxide. JITENDRA PRATAP SINGH (Roll No. 720CH1032).

M.Tech (R) Thesis Supervised

1. Bio Mineral Processing: A Suitable Approach: Shitarashmi Sahu (607CH-004), 2009.
2. Data-based Modeling: Application in Process Identification, Monitoring, and Fault Detection: Naga Chaitanya Kavuri, (608CH301), 2010.
3. Vapor-Liquid Equilibrium and Thermodynamic Property Estimation of (CO_2 - alkanolamines - water) System using Molecular Modeling and Validation with Experiments, SHIVANI (610CH305), 2013.
4. Abatement of Chromium (VI) and Mobilization of Selected Pollutants Including Cr (VI) in Aquatic Food Chain, Sayantani Sikder (614CH3007) 2018.
5. Development of an Economic Appliance for household waste disposal, Satya Ranjan Panda (619CH6001), April 2022.

Contributions to Continuing Education Programme

1. **GIAN course on Bigdata Applications in Process Operations: Modeling, Monitoring and Control.**
   171030G03 : Bigdata Applications in Process Operations: Modeling, Monitoring and Control
   Principal Investigator: Madhusree Kundu

   Foreign Expert: Prof. Lakshminarayanan, Samavedham, Department of Chemical and Biomolecular Engineering Department, National University of Singapore (NUS ChBE).
   Duration: June 25 – 30, 2018
   Sponsored by: MHRD
   Assignment: Coordinator

2. E-Short Term course on Advanced Mathematical Techniques for Engineers & Scientists (AMTES20), September 28-30, 2020, Department of Chemical Engineering National Institute of Technology Rourkela, Rourkela.
   Sponsored by: TEQIP III
   Assignment: Coordinator

3. **Short term course***PROCSIM-10* on "Application of ASPEN PLUS, g- PROMS (PSE), & MATLAB in Process Design, Simulation, Monitoring & Control".
   Organizer: NIT, Rourkela
   Coordinator: Dr. Madhusree Kundu
   Duration: 4-8 December 2010
   Assignment: Coordinator+ Resource Person

4. **Academic Refresher Course Programme II** for Hindustan Zinc LTD., Udaipur
   Organizer: BITS, Pilani

   Duration: October-December 2005
   Assignment: Resource Person.

5. **Academic Refresher Course Programme III** for Hindustan Zinc LTD., Udaipur
   Organizer: BITS, Pilani
   Duration: October-December 2006
   Assignment: Resource Person

6. **SHORT TERM COURSE on "Application of Advanced Fluidization Techniques to Waste Management and Energy Production"**
   Organizer: NIT Rourkela
   Duration: 17th-21st MARCH, 2008
   Assignment: Resource Person.

7. **DST-SERC COURSE on NEWER OPTIMIZATION TECHNIQUES FOR CHEMICAL ENGINEERING APPLICATIONS**
   Organizer: Indian Institute of Technology, Kanpur
   Duration: June 09 – 14, 2008
   Assignment: Participant

8. **National Seminar and Workshop on Advanced Separation Processes (NSWASP 2002)**
   Organizer: Indian Institute of Technology, Kharagpur in Collaboration with University of Kentucky, USA
   Duration: July 30 – 31, 2002
   Assignment: Participant

Courses Taught:

Under Graduate: Chemical Engineering Thermodynamics, Non-Traditional Optimization Techniques, Heat Transfer Operations, Reaction Engineering, Fluid Flow Operations. Heat Transfer operations.

Post-Graduation: Process Plant Simulation, Advanced Process Control, Modern Separation Processes in Chemical Engg.,

Other Professional Services

- Head, Department of Chemical Engineering (1 July 2018-30 June 2021), NIT Rourkela, Orissa.
- Head of Central Instrumental Facility (CIF), NIT Rourkela, Orissa (2020-2022).
- Member of Board of studies; Biju Patnaik University of Technology Odisha.

- Member of Editorial Board in the International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS) From February 1 2018-2020.
- President of IIChE Rourkela Student chapter from 2022.
- **Reviewer** of *International Refereed Journals including Fluid phase equilibria, Industrial Engineering and Chemistry Research, Thermochimica Acta, Journal of Chemmometrics, Journal of Dynamic Systems Measurement and Control, and International Journal of Nonlinear Sciences and Numerical Simulation, Korean Journal of Chemical Engineering, ISA Transactions®, and JCED, among others.*

Service to the Society:

Member of the Rotary Club of Rourkela Steel City.