CURRICULUM VITAE

1. **Name and full correspondence address:**

Dr. Bukke Kiran Naik
Assistant Professor (Grade—I),
Faculty of Mechanical Engineering Department, National Institute of Technology (NIT) Rourkela, Sector 1, Rourkela, Odisha-769008, India.

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2. **Webpage:**
   a. **Institute webpage:** https://www.nitrkl.ac.in/FacultyStaff/FacultyProfile/naikkb
   b. **BRICS YSF webpage:** https://brics-ysf.org/content/bukke-naik
   c. **Personal webpage:** https://sites.google.com/view/steslaboratory/home

3. **Short bio:**

Dr. Bukke Kiran Naik has been an Assistant Professor in the Mechanical Engineering Department at NIT Rourkela since 2020. He received his Ph.D. (2019) and M.Tech (2014) from IIT Guwahati, and his B.Tech (2012) from JNTU Anantapur in Mechanical Engineering. He worked as a Queen Elizabeth Postdoctoral Fellow at Simon Fraser University, Canada, during 2019–2020, and served as a Project Engineer at IIT Guwahati in 2019. He has held positions as a Visiting Researcher at the Georgia Institute of Technology, USA, a Visiting Scientist at PTB Braunschweig, Germany, and a Visiting Faculty member at KEK, Japan. Dr. Naik is the recipient of several prestigious fellowships, including the Paired Early Career Fellowship in Applied Research (PECFAR) from the Indo-German Science and Technology Centre (IGSTC), the Sakura Science Exchange Program from the Japan Science and Technology Agency (JST), the Queen Elizabeth Scholars (QES) Fellowship from Universities Canada, the CCSTDS Travel Fellowship from INSA/CSIR/DAE-BRNS-CCSTDS, the SIRE Fellowship, and the SERB-ITS Travel Grants for 2017 and 2023 from the DST, Government of India. He was also selected as a Young Indian Scientist for the 6th BRICS (Brazil, Russia, India, China, and South Africa) Conclave in 2021 in the thematic area of Energy Solutions. Dr. Naik holds three patents and has secured five funded research projects from ISRO, SERB, ICMR, ISHRAE, and NIT Rourkela. He has received funding from several agencies (OSRTC, SERB, ATAL, and ISHRAE) to organize outreach programs such as workshops and short-term courses. He is currently serving as the Zonal Chair for the East Region in the ISHARE Educational Committee (IEC) for 2024 to date and served as the ISHRAE Bhubaneswar Sub-Chapter President for 2022–2023. Currently, Dr. Naik is supervising six Ph.D. students, three Master's students, and two Undergraduate students. He has previously guided one Ph.D. student, over seventeen M.Tech students, and sixteen B.Tech students. He has published more than 50 research articles in reputable international journals and conference proceedings. He is a member of IEI (INDIA) (M-1804086) since 2024, a Life Member of the Space Society of Mechanical Engineers (SSME) (LM-0393) since 2022, and an Associate Member of ISHRAE (22265) since 2016. Moreover, Dr. Naik has been invited by various renowned institutions, universities, and societies to deliver talks on his research in the energy-building-water nexus and sustainable energy and buildings. He has published more than 50 research articles in reputable international journals and conference proceedings. Moreover, Dr. Naik has been invited by various renowned institutions, universities, and societies to deliver talks on his research in the energy-building- water nexus, sustainable energy and buildings, and intelligent thermal engineering–AI & ML approaches.

4. **Email (s) and contact number (s):**

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5. **Areas of Interest:** Sustainable energy and buildings; Energy-Water nexus; Thermo-chemical energy conversion and storage; Intelligent Thermal Engineering: AI & ML Approaches; Coupled heat and mass transfer system's modeling.
6. **Institution:** National Institute of Technology (NIT) Rourkela
7. **Date of Birth:** 27th January 1991
8. **Gender (M/F/T):** Male (M)
9. **Academic Qualification(Undergraduate Onwards)**

Degree	Institute/ College/ School	Year	Subject
Ph.D.	Indian Institute of Technology Guwahati	2014 – 2019	**PhD Thesis Title:** Design and Performance Assessments of Solar Driven Liquid Desiccant Air Conditioning System Components **Department:** Mechanical Engineering **Research Area:** Energy and Buildings
M. Tech	Indian Institute of Technology Guwahati	2012 – 2014	**Department:** Mechanical Engineering **Specialization:** Fluids & Thermal
B. Tech	Jawaharlal Nehru Technological University Anantapur	2008 – 2012	**Department:** Mechanical Engineering

10. **Professional experience (in chronological order):**

Sl. No.	Positions held	Name of the institute	From	To
1.	Project Engineer	Indian Institute of Technology Guwahati, India	Feb. 2019	May 2019
2.	Queen Elizabeth Postdoctoral Fellow	Simon Fraser University, Burnaby, Canada	September 2019	March 2020
3.	Visiting Scientist	PTB Braunschweig, Germany (Through PECFAR – IGSTC)	May 2023	July 2023
4.	Visting Researcher	Georgia Institute of Technology, Atlanta, USA (Through SERB – SIRE Fellowship)	November 2023	March 2024
5.	Visiting Faculty	KEK –High Energy Accelerator Research Organization, Japan (Through Sakura Science Exchange Program)	June 2024	July 2024
6.	Assistant Professor (Grade–II) [6000 AGP]	National Institute of Technology (NIT) Rourkela, India	April 2020	March 2023
7.	Assistant Professor (Grade–II) [7000 AGP]	National Institute of Technology (NIT) Rourkela, India	April 2023	June 2024
8.	Assistant Professor (Grade–I) [8000 AGP]	National Institute of Technology (NIT) Rourkela, India	July 2024	Present

11. **Professional Recognition/Award/Prize/Certificate/Fellowship received**

11.1 International Level

Sl. No.	Name of Award	Awarding Agency	Year
1.	Selected for Sakura Science Exchange Program to visit KEK, Japan	Japan Science and Technology Agency (JST)	2024

2.	Selected for Paired Early Career Fellowship in Applied Research (PECFAR) by IGSTC	Indo-German Science & Technology Centre (IGSTC)	2022
3.	Selected as Young Indian Scientist to 6th BRICS conclave in thematic area of Energy Solutions	NIAS & DST	2021
4.	Queen Elizabeth Scholars– Advanced Studies (QES–AS) fellowship for pursuing Postdoctoral studies	Universities Canada	2019–2020
5.	Received SERB-SIRE fellowship to visit Georgia Institute of Technology, Atlanta, USA	SERB	2023
6.	SERB–ITS Travel Grant for attending international conferences – ICR 2023 and ISHPC 2017 held at Paris Congress Center, France and Waseda University, Tokyo, Japan	SERB	2017 & 2023

11.2. National Level

Sl. No.	Name of Award	Awarding Agency	Year
1.	Received ISHRAE Presidential Award for Chapter Excellence as ISHRAEBhubaneswar Sub-Chapter President	ISHRAE	2023
2.	Elected as President of ISHRAE Bhubaneswar sub-chapter year 2022	ISHRAE	2022
3.	Mentoring of Engineering Teachers Fellowship	INAE	2021
4.	CCSTDS Travel fellowship award for attending international conference (ICP 2019) held at Kyushu University, Fukuoka, Japan	INSA/CSIR/DAE BRNS-CCSTDS	2019
5.	Nominated as PG Senator	IIT Guwahati	2015–2016
6.	Merit Award for good performance in higher secondary education	Visakhapatnam steel plant thrift & credit society limited	2008

12. Administrative and Professional society responsibilities

12.1 Administrative responsibility

Sl. No.	Responsibility	Year
1.	Sustainable Development Goal, Institute Committee Member	February 2025 – Present
2.	JJGB, Institute Central Committee Member	February 2025 – Present
3.	Warden, MSS Hall of Residence, NIT Rourkela	July 2024 – Present
4.	B-Tech (Mechanical) Faculty Advisor, NIT Rourkela	July 2024 – Present
5.	Assistant Warden, MSS Hall of Residence, NIT Rourkela	June 2022 – June 2024
6.	Institute HVAC works committee member, NIT Rourkela	April 2022 – April 2024
7.	M-Tech (Thermal Engineering) Faculty Advisor, NIT Rourkela	2021 – 2023
8.	Co-PIC for Mechanical Department Accreditation and Ranking (UG), Student Societies, Internship and higher studies, NIT Rourkela	2022– Present

12.2 Professional society responsibility

Sl. No.	Positions held	Professional Society	From	To
1.	Zonal Chair (IEC)	ISHRAE East Region	April 2024	Present
2.	Immediate Past President & Refrigeration Chair	ISHRAE Bhubaneswar Sub-Chapter	April 2023	March 2024
3.	President	ISHRAE Bhubaneswar Sub-Chapter	April 2022	March 2023
4.	Program Chair	ISHRAE Bhubaneswar Sub-Chapter	April 2021	March 2022
5.	Students Activities Chair	ISHRAE Guwahati Sub-Chapter	April 2017	March 2018
6.	K-12 Chair & CWC Member	ISHRAE Guwahati Sub-Chapter	April 2016	March 2017

12.3. Lab Development

1. **Sustainable Thermal Energy Systems Laboratory (STESL),** Mechanical Engineering Department, NIT Rourkela.

   Lab information: Research laboratory for innovations in sustainable/nature-inspired thermal energy systems, buildings, and technologies

2. **Sustainable Energy Park,** Mechanical Engineering Department, NIT Rourkela.

   Lab information: Tech-park cum UG/PG laboratory on sustainable energytechnologies.

13. List of Patents

1. **B. Kiran Naik,** Gaurav Priyadarshi and D. Abhishek, Design of desiccant coated heat exchanger, Status: Granted; Application Number: 345453-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
2. Y. B. Desale, G. Ranjan and **B. Kiran Naik**, Design of thermal switch, status: Granted; Application Number: 383757-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
3. G. Ranjan, Y. B. Desale, and **B. Kiran Naik**, Design of heat switch, status: Granted; Application Number: 383756-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
4. **Gautam Ranjan**, Y. B. Desale, B. Kiran Naik, Kishore Singh Patel, Suryanarayan Das, NIT Rourkela, V K Singh, Sandip Somani, Design of heat switch, status: Granted; Application Number: 246190-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
5. Bukke Kiran Naik, Pedisetti Kumar Sai Tejes, Debashish Sa, NIT Rourkela, Design of air purifier, status: Applied; Application Number: 445224-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
6. Bukke Kiran Naik, Pedisetti Kumar Sai Tejes, Debashish Sa, NIT Rourkela, Design of air purifier and sterilization device, status: Applied; Application Number: 445217-001; Agency/Country: Indian patent office; Nature of patent: Design patent.

14. List of Publications

1. Priyadarshi, G., Hoang, H. M., Hunlede, R., Paviet-Salomon, Y., Delahaye, A., & Naik, B. K. (2025). Application of artificial intelligence models for assessing the performance of closed vertical refrigerated display cabinet-A comparative study of different operating scenarios. Engineering Applications of Artificial Intelligence, 147, 110332. https://doi.org/10.1016/j.engappai.2025.110332

2. Ranjan, G., Naik, B. K., & Singh, V. K. (2025). Thermo-magnetic characteristics and performance analysis of pure single crystal tungsten-based magnetoresistive heat switch for low-Kelvin temperature. *Thermal Science and Engineering Progress, 103313*. https://doi.org/10.1016/j.tsep.2025.103313
3. Sunkarwar, O. P., Naik, B. K., & Dasore, A. (2025). Experimental and numerical study of parallel flow evacuated U-tube solar collector with parabolic reflector: Impact of particulate matter. *Journal of Solar Energy Engineering, 1-29*. https://doi.org/10.1115/1.4067664
4. Sonkar, M., & Naik, B. K. (2025). Performance assessment of sustainable evacuated tube heat pipe solar collector driven seawater desalination system. Solar Compass, 100112. https://doi.org/10.1016/j.solcom.2025.100112
5. Priyadarshi, G., & Naik, B. K. (2024). Experimental study of novel desiccant coated energy exchanger employing PCM–Silica gel working pair for air conditioning and thermal energy storage application. *Energy Conversion and Management*, 321, 119042. https://doi.org/10.1016/j.enconman.2024.119042
6. Sonkar, M., Pati, S. K., Naik, B. K., & Patel, K. S. (2024). Sustainable wastewater recovery system employing geothermal energy–Performance and feasibility study. *Desalination and Water Treatment*, 320, 100674. https://doi.org/10.5004/dwt.2024.100674
7. Dasore, A., Naik, B. K., Konijeti, R., Prakash, B. O., Kumar, R., & Saxena, K. K. (2024). Design and investigating the inlet parameters on the performance of the Ranque-Hilsch vortex tube. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 18(8). https://doi.org/10.1007/s12008-024-00899-7
8. Verma, S. K., Patel, K. S., & Naik, B. K. (2024). Coupled discrete phase and Eulerian wall film models for drug deposition efficacy analysis in human respiratory airways. *Molecular Pharmaceutics*, 21(10), 5071–5087. https://doi.org/10.1021/acs.molpharmaceut.4b00567
9. Tejes, P. K. S., & Naik, B. K. (2024). Computational and experimental analyses on three-fluid operated novel hollow fiber membrane-based liquid desiccant dehumidifier. *Thermal Science and Engineering Progress*, 53, 102783. https://doi.org/10.1016/j.tsep.2024.102783
10. Priyadarshi, G., & Naik, B. K. (2024). Experimental and numerical studies on moisture adsorption/desorption characteristics across the circular fin tube desiccant coated heat exchanger. *Thermal Science and Engineering Progress*, 53, 102755. https://doi.org/10.1016/j.tsep.2024.102755
11. Jagirdar, M. N. S., Priyadarshi, G., Naik, B. K., & Niyas, H. (2024). Implementation of adaptive neuro-fuzzy inference system in design and process optimization of latent heat storage system. *Journal of Energy Storage*, 89, 111810. https://doi.org/10.1016/j.est.2024.111810
12. Desale, Y. B., Rathore, S. K., Ranjan, G., Naik, B. K., & Patel, K. S. (2024). Holistic geometrical optimization and magnetic field orientation of single crystal tungsten-based magnetoresistive heat switch. *Heat Transfer Engineering*, 1–18. https://doi.org/10.1080/01457632.2024.1234567
13. Priyadarshi, G., Murali, C., Agarwal, S., & Naik, B. K. (2024). Parametric investigation and optimization of phase change material-based thermal energy storage integrated desiccant coated energy exchanger through physics-informed neural networks. *Journal of Energy Storage*, 80, 110231. https://doi.org/10.1016/j.est.2024.110231
14. Nagamani, G., Naik, B. K., & Agarwal, S. (2024). Energetic and exergetic performance analyses of mobile thermochemical energy storage system employing industrial waste heat. *Energy*, 288, 129730. https://doi.org/10.1016/j.energy.2024.129730
15. Anand, P., Tejes, P. K. S., Naik, B. K., & Niyas, H. (2023). Design analysis and performance prediction of packed bed latent heat storage system employing machine learning models. Journal of Energy Storage, 72, 108690. https://doi.org/10.1016/j.est.2023.108690
16. Ram, B. R., Malik, V., Naik, B. K., & Patel, K. S. (2023). A critical review on mechanical heat switches for engineering and space applications. Heat Transfer Engineering, 44(19), 1789–1802. https://doi.org/10.1080/01457632.2023.2174567
17. Naik, B. K., Sutradhar, R., Priyadarshi, G., & Narkhede, A. P. (2023). A novel similarity solution approach based thermal performance prediction and environmental analysis of evacuated U-tube solar collector employing different mono/hybrid nanofluids. Heat Transfer Engineering, 44(19), 1719–1732. https://doi.org/10.1080/01457632.2023.2174568

18. Priyadarshi, G., & Naik, B. K. (2023). Desiccant coated fin tube energy exchanger design optimization implementing KNN-ML tool and adsorption/desorption kinetics analysis using finite difference based transient model. International Journal of Thermal Sciences, 192, 108422. https://doi.org/10.1016/j.ijthermalsci.2023.108422
19. Tejes, P. K. S., & Naik, B. K. (2023). Performance analysis and comparison of M-cooler based indirect contact and structured packing-based direct contact liquid desiccant dehumidifiers. Sādhanā, 48(4), 205. https://doi.org/10.1007/s12046-023-02005-6
20. Ram, B. R., Malik, V., Naik, B. K., Patel, K. S., & Singh, V. K. (2023). Development of empirical correlations for assessing the CuAlMn based shape memory alloy thermal switch phase transition temperatures. Sādhanā, 48(3), 189. https://doi.org/10.1007/s12046-023-01989-3
21. Choudhary, P., Desale, Y. B., Ranjan, G., Naik, B. K., & Singh, V. K. (2023). Parametric optimization of wire EDM process for single crystal pure tungsten using Taguchi-Grey relational analysis. Sādhanā, 48(3), 152. https://doi.org/10.1007/s12046-023-01952-2
22. Priyadarshi, G., & Naik, B. K. (2023). Performance potentiality analysis of desiccant coated energy exchanger for M− cooler based air conditioning and solar driven drying systems–A case study. Thermal Science and Engineering Progress, 43, 102022. https://doi.org/10.1016/j.tsep.2023.102022
23. Deshmukh, N. S., Gawali, B. S., Naik, B. K., Choudhari, M. S., & Dhalait, R. S. (2023). Macroscopic parameters investigation and transfer characteristics assessment of counter flow packed tower liquid desiccant dehumidifier/regenerator. Heat and Mass Transfer, 59(7), 1185–1207. https://doi.org/10.1007/s00231-023-03345-6
24. Babu, P. E., Tejes, P. K. S., & Naik, B. K. (2023). Parametric investigation on CO_2 separation from flue gas through temperature swing adsorption process using different sorbent materials. Carbon Capture Science & Technology, 7, 100103. https://doi.org/10.1016/j.ccst.2023.100103
25. Bhowmik, M., Naik, B. K., Muthukumar, P., & Anandalakshmi, R. (2023). Performance assessment and optimization of liquid desiccant dehumidifier system using intelligent models and integration with solar dryer. Journal of Building Engineering, 64, 105577. https://doi.org/10.1016/j.jobe.2023.105577
26. Mohapatra, A., Tejes, P. K. S., Gembali, C., & Naik, B. K. (2023). Design and performance analyses of evacuated U-tube solar collector using data-driven machine learning models. Journal of Solar Energy Engineering, 145(1), 011007. https://doi.org/10.1115/1.4056798
27. Pavangat, A., Bindhani, O. S., & Naik, B. K. (2023). Year-round and techno-economic feasibility analyses on integration of absorption based mobile thermochemical energy storage with building cooling system in tropical climate. Energy, 263, 126042. https://doi.org/10.1016/j.energy.2023.126042
28. Tejes, P. K. S., Priyadarshi, G., & Naik, B. K. (2023). Performance characteristics assessment of hollow fiber membrane-based liquid desiccant dehumidifier for drying application. Applied Thermal Engineering, 218, 119311. https://doi.org/10.1016/j.applthermaleng.2022.119311
29. Priyadarshi, G., Baruah, D., & Naik, B. K. (2022). Design and performance prediction of desiccant coated heat exchanger using ANFIS–AI tool and dynamic model. Applied Thermal Engineering, 217, 119034. https://doi.org/10.1016/j.applthermaleng.2022.119034
30. Pandey, T., Tejes, P. K. S., & Naik, B. K. (2022). Performance assessment of novel liquid desiccant drying/air conditioning cum desalination system by incorporating M-cycle based dehumidification process. Desalination, 537, 115843. https://doi.org/10.1016/j.desal.2022.115843
31. Amim, A., Priyadarshi, G., Babre, T. P., & Naik, B. K. (2022). Evaluation of thermal kinetics of microencapsulated PCM for low-temperature thermal energy storage application. Materials Letters: X, 14, 100143.
32. Karishma, S. M., Rajak, U., Naik, B. K., Dasore, A., & Konijeti, R. (2022). Performance and emission characteristics assessment of compression ignition engine fuelled with the blends of novel antioxidant catechol-daok biodiesel. Energy, 245, 123304. https://doi.org/10.1016/j.energy.2022.123304
33. Ranjan, G., Desale, Y. B., Patel, K. S., Naik, B. K., & Singh, V. K. (2022). Thermal performance assessment of tungsten-based magneto-resistive heat switch at different oblique plane angles for space application. Indian Cryogenics Council, 47(1), 84–92.

34. Aadhithiyan, A. K., Sreeraj, R., Naik, B. K., & Anbarasu, S. (2021). Assessment of evaporative cooling process across the mechanically driven cooling tower based on two-point boundary value problem using novel integral technique. International Journal of Refrigeration, 131, 254–262. https://doi.org/10.1016/j.ijrefrig.2021.08.002
35. Naik, B. K., Premnath, S., & Muthukumar, P. (2021). Performance comparison of evacuated U-tube solar collector integrated parabolic reflector with conventional evacuated U-tube solar collector. Sādhanā, 46(3), 137. https://doi.org/10.1007/s12046-021-01656-7
36. Naik, B. K., & Muthukumar, P. (2021). Parametric and performance investigations on novel multipurpose liquid desiccant drying/desalination system. Heat Transfer Engineering, 42(13–14), 1142–1158. https://doi.org/10.1080/01457632.2020.1781030
37. Naik, B. K., Chinthala, M., Patel, S., & Ramesh, P. (2021). Performance assessment of waste heat/solar driven membrane-based simultaneous desalination and liquid desiccant regeneration system using a thermal model and KNN machine learning tool. Desalination, 505, 114980. https://doi.org/10.1016/j.desal.2021.114980
38. Dasore, A., Konijeti, R., Naik, B. K., & Annam, S. P. R. (2021). Performance evaluation of adsorption refrigeration system using different working pairs. In A. Dasore, R. Konijeti, B. K. Naik, & S. P. R. Annam (Eds.), Innovations in Sustainable Energy and Technology: Proceedings of ISET 2020 (pp. 20–30). Springer. https://doi.org/10.1007/978-981-16-0749-3_3
39. Naik, B. K., Joshi, M., Muthukumar, P., Sultan, M., Miyazaki, T., Shamshiri, R. R., & Hara, M. (2020). Investigating solid and liquid desiccant dehumidification options for room air-conditioning and drying applications. Sustainability, 12(24), 10582. https://doi.org/10.3390/su122410582
40. Shabir, F., Sultan, M., Niaz, Y., Usman, M., Ibrahim, S. M., Feng, Y., Naik, B. K., Miyazaki, T., & Hara, M. (2020). Steady-state investigation of carbon-based adsorbent–adsorbate pairs for heat transformation application. Sustainability, 12(17), 7040. https://doi.org/10.3390/su12177040
41. Naik, B. K., Singh, B., Dutta, N., Subbiah, S., & Muthukumar, P. (2020). Fluid to liquid membrane energy exchanger for simultaneous liquid desiccant regeneration and desalination applications–Theoretical and experimental analyses. Energy Conversion and Management, 204, 112291. https://doi.org/10.1016/j.enconman.2019.112291
42. Dasore, A., & Ramakrishna, K., & Naik, B. K. (2020). Evaluation of heat and mass transfer coefficients at beetroot-air interface during convective drying. Interfacial Phenomena and Heat Transfer, 8(4), 38–50. https://doi.org/10.1615/InterfacPhenomHeatTransfer.2020034861
43. Naik, B. K., & Muthukumar, P. (2019). Energy, entransy and exergy analyses of a liquid desiccant regenerator. International Journal of Refrigeration, 105, 80–91. https://doi.org/10.1016/j.ijrefrig.2019.05.014
44. Naik, B. K., Bhowmik, M., & Muthukumar, P. (2019). Experimental investigation and numerical modelling on the performance assessments of evacuated U–Tube solar collector systems. Renewable Energy, 134, 1344–1361. https://doi.org/10.1016/j.renene.2018.09.066
45. Naik, B. K., Muthukumar, P., & Bhattacharyya, C. (2019). Thermal modelling and parametric investigations on coupled heat and mass transfer processes occurred in a packed tower. Heat and Mass Transfer, 55, 627–644. https://doi.org/10.1007/s00231-018-2430-0
46. Naik, B. K., & Muthukumar, P. (2019). Experimental investigation and parametric studies on structured packing chamber based liquid desiccant dehumidification and regeneration systems. Building and Environment, 149, 330–348. https://doi.org/10.1016/j.buildenv.2018.12.042
47. Naik, B. K., & Muthukumar, P. (2019). Performance assessment of evacuated U-tube solar collector: A numerical study. Sādhanā, 44(1), 23. https://doi.org/10.1007/s12046-018-1001-0
48. Naik, B. K., Muthukumar, P., & Kumar, P. S. (2018). A novel finite difference model coupled with recursive algorithm for analyzing heat and mass transfer processes in a cross flow dehumidifier/regenerator. International Journal of Thermal Sciences, 131, 1–13. https://doi.org/10.1016/j.ijthermalsci.2018.04.014
49. Muthukumar, P., Naik, B. K., & Goswami, A. (2018). Performance evaluation of a mechanical draft cross flow cooling towers employed in a subtropical region. Journal of The Institution of Engineers (India): Series C, 99(5), https://doi.org/10.1007/s40032-018-0441-y

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51. Muthukumar, P., Naik, B. K., & Goswami, A. (2018). Performance evaluation of a mechanical draft cross flow cooling towers employed in a subtropical region. Journal of The Institution of Engineers (India): Series C, 100(2), 333–341. https://doi.org/10.1007/s40032-018-0401-0
52. Naik, B. K., Muthukumar, P., & Bhowmik, M. (2018). Experimental investigation and numerical modeling on the performance assessments of evacuated U-tube solar collector systems. Renewable Energy, 30, 1–18. https://doi.org/10.1016/j.renene.2018.05.001
53. Naik, B. K., & Muthukumar, P. (2017). A novel approach for performance assessment of mechanical draft wet cooling towers. Applied Thermal Engineering, 121, 14–26. https://doi.org/10.1016/j.applthermaleng.2017.04.112
54. Naik, B. K., Choudhary, V., Muthukumar, P., & Somayaji, C. (2017). Performance assessment of a counter flow cooling tower–unique approach. Energy Procedia, 109, 243–252. https://doi.org/10.1016/j.egypro.2017.03.041
55. Naik, B. K., & Muthukumar, P. (2017). Empirical correlation based models for estimation of air cooled and water cooled condenser's performance. Energy Procedia, 109, 293–305. https://doi.org/10.1016/j.egypro.2017.03.042
56. Naik, B. K., Varshney, A., Muthukumar, P., & Somayaji, C. (2016). Modelling and performance analysis of U type evacuated tube solar collector using different working fluids. Energy Procedia, 90, 227–237. https://doi.org/10.1016/j.egypro.2016.11.191
57. Naik, B. K., Soni, A., Muthukumar, P., & Somayaji, C. (2016). Coupled heat and mass transfer analysis of an adiabatic dehumidifier–unique approach. Energy Procedia, 90, 305–315. https://doi.org/10.1016/j.egypro.2016.11.192

17.2 List of Conferences

a) Conferences abroad

1. Gaurav Priyadarshi, P. K. S Tejes and B. Kiran Naik, "Physics-Informed Neural Network and Experimental Investigations for Analyzing Adsorption Kinetics of Desiccant Coated Energy Exchanger Under Tropical Climatic Conditions", 26th International Congress of Refrigeration 2023,Paris, 21st – 25th Aug. 2023.

2. Shivendra Kr Rathore, Yash Desale, K. S. Patel, and B. Kiran Naik, "Design and Optimization of Niobium-Titanium based Superconductive Magnet for the Magneto Resistive Heat Switch", in 26th International Congress of Refrigeration, Paris 21st – 25th August 2023.

3. P. K. S Tejes and B. Kiran Naik, "Computational and Experimental Analyses on Absorption Kinetics/Characteristics Evaluation of Three Fluid Operated Novel Hollow Fiber Membrane based Liquid Desiccant Dehumidifier", 7 th International Conference on Polygeneration, (ICP-2023), Universitas Indonesia, 26th -28th July, Kuta, Bali, Indonesia.

4. Gaurav Priyadarshi, Cheepurupalli Murali, and B. Kiran Naik, Experimental and Numerical Investigations for Assessing Desiccant Sorption Kinetics/Characteristics Across the Desiccant Coated Energy Exchanger, 7th International Conference on Polygeneration (ICP) 2023, 26th-28th july 2023, Bali, Indonesia.

5. Gowrisetti Nagamani, and B. Kiran Naik. "Performance Comparison of Mobile ThermoChemical Energy Storage based Building Space Cooling System with Conventional Vapor Absorption/Compression Based Centralized HVAC System", 7th International Conference on

Polygeneration, (ICP-2023), Universitas Indonesia, 26th-28th July, Kuta, Bali, Indonesia.

6. P. Eswar Babu and B. Kiran Naik, "Parametric Analysis on CO2 Separation from Flue Gas Under Atmospheric Conditions – Computational Study", Conference: 7th International Conference On Polygeneration, (ICP-2023), 26-28 July, Kuta, Bali, Indonesia.

7. Cheepurupalli Murali, Gaurav Priyadarshi and B. Kiran Naik, Physics-Informed Neural Networks for Analysing the Performance Characteristics of Desiccant Coated Energy Exchanger, 1st edition of International Congress on Separation and Purification Technology (ISPT) 2022, 10th -14th December 2022, USA.

8. Tirtharaj Babre and B. Kiran Naik, Assessment of Performance Evaluation Criterion for CO_2 Capture from Flue Gases Using Dynamic Mode, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Instiute (TERI) & Goa University (GU), April 4-6, 2022.

9. Gaurav Priyadarshi, Dipankar Baruah, B. Kiran Naik, Design and Performance Analyses of Solar-Powered Design Coated Energy Exchanger, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Instiute (TERI) & Goa University (GU), April 4-6, 2022.

10. Vinit Malik, Raghuram. B and B. Kiran Naik, Impact of Impurities in Tungsten Based Magneto-Resistive Heat Switch for Space Application, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Instiute (TERI) & Goa University (GU), April 4-6, 2022.

11. P. K. S. Tejes, Trayambke pandey and B. Kiran Naik, Calibration and measurement evaluation criterion for extraction of freshwater from salt solution using solar heater/biogas renewable source, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Instiute (TERI) & Goa University (GU), April 4-6, 2022.

12. Omkar Satyaprakash Bindhani and B. Kiran Naik, Net-Zero Model for transportation of Mobile Thermochemical Energy Storage Through District Energy Network, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Instiute (TERI) & Goa University (GU), April 4-6, 2022.

13. Gaurav Priyadarshi and B. Kiran Naik, Implementation of ANFIS-AI Tool with ANN Fuzzy Logic for Performance Prediction and Design Optimization of Desiccant Coated Energy Exchanger, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira i Virgili, Spain, 4 - 6 October 2021.

14. Atif Amim, B. Kiran Naik, Evaluation of Adsorption Kinetics of Micro-Encapsulated Sorbents and Thermal Kinetics of Micro-Encapsulated PCM for Low Temperature Thermal Energy Storage Application, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira i Virgili, Spain, 4 - 6 October 2021.

15. Athul Pavangat and B. Kiran Naik, Techno-Economic Feasibility Study on Integration of Mobile

Thermochemical Energy Storage with Building Space Cooling System, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira i Virgili, Spain, 4– 6 October 2021.

16. P. Kumar Sai Tejes, Gaurav Priyadarshi and B. Kiran Naik, Hollow Fiber Membrane-Based Liquid Desiccant Dehumidifier Performance Assessment for Air Conditioning/Drying Application, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira iVirgili, Spain, 4 - 6 October 2021.

17. Gaurav Priyadarshi and B. Kiran Naik, Performance Evaluation of Desiccant Coated EnergyExchanger Based on Buckingham pi-Theorem, Int. Sorption Heat Pump Conf. 2021 (ISHPC 2021), International Institute of Refrigeration (IIR), 22 - 25 Aug 2021, Technische Universitat Berlin.

18. P. Kumar Sai Tejes and B. Kiran Naik, Data Driven AI and ML Tools for Exit Parameters Prediction of Hollow Fiber Membrane Liquid Desiccant Dehumidifier, Int. Sorption Heat Pump Conf. 2021 (ISHPC 2021), International Institute of Refrigeration (IIR), 22 - 25 Aug 2021, Technische Universitat Berlin.

19. Atif Amim and B. Kiran Naik, Sorption Kinetics Assessment of Microencapsulated Sorbent with Humid Air Employing Variable Separable Approach, Int. Sorption Heat Pump Conf. 2021 (ISHPC 2021), International Institute of Refrigeration (IIR), 22 - 25 Aug 2021, Technische Universitat Berlin.

20. B. Kiran Naik and P. Muthukumar, Parametric Studies and Performance Investigation on Novel Liquid Desiccant Drying/Desalination System, 5th International Conference on Polygeneration (ICP 2019), May 15-17, 2019, Kyushu University, Fukuoka, Japan.

21. Mrinal Bhowmik, B. Kiran Naik, R. Anandalakshmi and P. Muthukumar, An Experimental Investigation of the Dehumidifier Performance Evaluation Using LiCl-HCOOK Blends, 5th International Conference on Polygeneration (ICP 2019), May 15-17, 2019, Kyushu University, Fukuoka, Japan.

22. B. Kiran Naik, and P. Muthukumar, Energy, Entransy and Exergy Analyses of a Liquid Desiccant Regenerator, International Sorption Heat Pump Conference (ISHPC-2017), International Institute of Refrigeration (IIR), Aug. 7-10, 2017, Waseda University, Tokyo, Japan.

b) Conferences in India

24. Manish Sonkar and B. Kiran Naik, "Modelling and optimization of liquid desiccant regeneration system using ANN-AI tool", 2nd International Conference on Energy Resources and Technologies for Sustainable Development (ICERTSD–2023), 27th and 28th April 2023, IIEST Shibpur, India.

25. Manish Sonkar, G. Nagamani and B. Kiran Naik, "Parametric study on industrial waste heat driven and PCM based energy storage employed liquid desiccant regeneration system, Innovations in Clean Energy Technologies (ICET-2023), 8th – 10th April 2023, MNIT Bhopal, India.

26. Manish Sonkar, G. Nagamani and B. Kiran Naik, "International Workshop and Conference on Membrane Assisted Water Purification Processes,9th – 12th March 2023 MGU, Kottayam, Kerala, India.

24. P. Eswar Babu, and B. Kiran Naik, "Adsorption Kinetics Assessment of CO2 Capture in an

Adsorber Bed under Atmospheric Conditions", International Conference on Evolutionary Manufacturing, Design, and Operational Practices for Sustainability, (ICEMDOPS-2022), 15th - 17th December 2022, CGU

25. Soumya Ranjan Behera, P. K. S. Tejes and B. Kiran Naik "Comparative Analysis and Performance Optimization of Hollow Fiber Membrane Based Liquid Desiccant Distillation System Using Physics-Informed Neural Networks", International Workshop and Conference on Membrane Assisted Water Purification Process (ICMW 2023), Mahatma Gandhi University, Kottayam, Kerala, India.

26. Yash Bhausaheb Desale, Shivendra Kr Rathore, B. Kiran Naik, K. S. Patel, and Vivek Kumar Singh, "Effect of Cross-sectional Area on the Thermal Conductivity at Temperatures below 6 K", 4 th International Conference on Recent Advances in Mechanical Infrastructure (ICRAM-2022), Institute of Infrastructure, Technology, Research and Management, Ahmedabad, 16th -18th Dec 2022.

27. P. K. S. Tejes and B. Kiran Naik, Performance Prediction of Hollow Fiber Membrane-Based Liquid Desiccant Dehumidifier Using PCA-Integrated OGM (1, N) and SVM Machine Learning Tools, 4th International Conference on Recent Advances in Mechanical Infrastructure jointly organised by IITRAM Ahmedabad and IIT Bhilai, 16th - 18th December 2022.

28. Shivendra Kr Rathore, Yash Desale, K. S. Patel, and B. Kiran Naik, "Design and Optimization of Niobium-Titanium based Superconductive Magnet for the Magneto Resistive Heat Switch", in 28th National Symposium on Cryogenics and Superconductivity (NSCS-28), IIT Kharagpur 18th – 21st October 2022.

29. Yash Bhausaheb Desale, Shivendra Kr Rathore, B. Kiran Naik, K. S. Patel, and Vivek Kumar Singh, "Geometrical Design of Tungsten based Magnetoresistive Heat Switch, National Symposium Cryogenics & Superconductivity conference proceedings, Indian Institute of Technology Kharagpur, Kharagpur, 16th – 21st Oct 2022.

30. Pritam Choudhary and B. Kiran Naik, "Analysis of Parameters for Wire EDM Process for Pure Tungsten Using Taguchi Grey Relational Analysis", in NSCS-28, IIT Kharagpur, 18th-21st October 2022.

31. Vinit Malik, B. Raghuram, Kishore Singh Patel, B. Kiran Naik, V.K. Singh, C. Harish Balaji, R. R. Bhavsar, Comparison of pure and impure single-crystal tungsten magneto-resistive heat switch for space applications, CIME-2022, April 22-23, RGMCET-Nandyal.

32. Gaurav Priyadarshi, P. K. S. Tejes and B. Kiran Naik, Effect of Silica Gel Desiccant and Hydroxyethyl Cellulose Binder Coating Composition Variation on Water Uptake Capacity Across the Fin Tube Samples – Experimental Study, CIME-2022, April 22-23, RGMCET-Nandyal.

33. Tirtharaj Babre and B. Kiran Naik, Design and Performance Assessment of Zeolite 13X Based Adsorber Bed for Carbon Capture under Atmospheric Conditions, ACMS-2022, Kolkata, India, April 14-16.

34. P. K. S. Tejes and B. Kiran Naik, Solar Driven Hollow Fiber Membrane-Based Liquid Desiccant Regenerator Performance Assessment for Freshwater Generation Application, ACMS-2022, Kolkata, India, April 14-16.

17. Courses introduced at NIT Rourkela

- Refrigeration and Cryogenic Systems (ME6341) – Theory
- Air-Conditioning and Ventilating Systems (ME6343) – Theory
- Thermal Engineering Design Project (ME4372) – Practical
- Computational Intelligence in Thermal Systems Laboratory (ME6380) – Practical

18. Ph.D. Students guidance at NIT Rourkela

Sl. No.	Name of the Student (Roll No.)	Duration	Project Title/research area
1.	GAURAV PRIYADARSHI (519ME1011)	2019 – 2024	Development of desiccant coated energy exchanger for improving indoor environmental quality **Current Job position: Design Engineer at New Leaf Dynamic, Noida**
2.	P. KUMAR SAI TEJES (520ME6005)	2021 – Ongoing	Development of Novel Multipurpose Liquid Desiccant Drying/Desalination System Using Hydrophobic Membrane as an Energy Exchanger.
3.	MANISH SONKAR (522ME8003)	2022 – Ongoing	Design and Development of Liquid Desiccant Desalination System
4.	GAUTAM RANJAN (522ME1002)	2022 – Ongoing	Magentoresistive Heat Switch For Space Applications
5.	SAMEER KUMAR VERMA (522ME1012)	2022 – Ongoing	Biofluid Mechanics and MultiphaseFlow
6.	ASHIS KUMAR (923ME5001)	2023 – ongoing	Waste Heat Recovery and Water Extraction from Cooling Tower
7.	Shovit Kumar Sahu (523ME1002)	2023 – ongoing	Microencapsulated PCMs
8.	SOUMYA RANJAN MOHANTY (523ME6013)	2024 – ongoing	Cryocoolers
9.	Kanathala Yojitha (524ME1003)	2024 – ongoing	Thermal comfort
10.	Vinod Singh Rajput (923ME5004)	2023 – ongoing	H Waste Heat Recovery and Water Extraction from Flue gas
11.	Ashis Kumar (923ME5001)	2023 – ongoing	Waste Heat Recovery and Water Extraction from Cooling Tower
12.	Samoju Pruthvi Raj (924ME5001)	2024 – ongoing	Energy conservation and waste management

19. M-Tech Students guidance at NIT Rourkela

Sl. No.	Name of the Student (Roll No.)	Duration	Project Title/research area
1.	ATIF AMIM (219ME5571)	2020 – 2021	Adsorption and Thermal Kinetics Analyses of Microencapsulated Sorbents and PCMs for Low Temperature EnergyStorage Application.
2.	ATHUL PAVANGAT (219ME5292)	2020 – 2021	Sorption Thermal Energy Storage for District Energy Network Based BuildingSpace Cooling Application
3.	DIPANKAR BARUAH (220ME3408)	2021 – 2022	Studies on desiccant coated energy exchanger for dehumidification application
4.	TRYAMBKE PANDEY (220ME3421)	2021 – 2022	Mobile Thermal Energy Storage Based Building Space Cooling Application
5.	VINIT MALIK (220ME5054)	2021 – 2022	Magnetic heat switches for cryogenic temperature application
6.	TIRTHARAJ PURUSHOTTAM BABRE (220ME5430)	2021 – 2022	Carbon capture from flue gases using desiccant coated energy exchanger
7.	B. RAGHURAM (220ME5427)	2021 – 2022	Design and development of magneto resistive heat switch
8.	CHEEPURUPALLI MURALI (221ME3525)	2022 – 2023	Thermal kinetics and Dynamic Analysis of Desiccant Coated Heat Exchanger
9.	PASUPULA ESWAR BABU (221ME3528)	2022 – 2023	CO_2 Adsorption & Desorption under atmospheric conditions
10.	GOWRISETTI NAGAMANI (221ME3533)	2022 – 2023	Mobile Thermo-chemical EnergyStorage System
11.	OMKAR SUNKARWAR (221ME3536)	2022 – 2023	Experimental and Numerical Investigations on Parabolic Evacuated U-tube Solar Collector
12.	YASH BHAUSAHEB DESALE (221ME5540)	2022 – 2023	Optimal length, diameter and area of Tungsten crystal for Magneto resistive Heat Switch development
13.	SHIVENDRA KR RATHORE (221ME5544)	2022 – 2023	Design & optimisation of superconducting magnets for spaceapplications
14.	SK AMAN ALI (222ID1073)	2023–2024	Development of Magnetoresistive Heat Switch for Space Application using Wire EDM
15.	SUBHANKAR BHUNIA (222ME3224)	2023–2024	Numerical Analysis for Thermal Characterization of Pure Single Crystal Tungsten in a Magnetoresistive Heat Switch
16.	ADITYA DARKA (222ME3498)	2023–2024	Feasibility Study on Energy Saving Scenarios of Preinstalled Vapour Compression Chiller Based District Cooling System
17.	ARVIND KUMAR (222ME3499)	2023–2024	Performance Assessment of CO_2 Capture from Flue Gas Through Temperature Swing Adsorption on Adsorbent Materials

20. B-Tech Students guidance at NIT Rourkela

Sl. No.	Name of the Student (Roll No.)	Duration	Project Title/research area
1.	RAJEN SUTRADHAR (118ME0510)	2020 – 2021	Implementation of AI/ML Tools for design and performance assessment ofliquid desiccant dehumidifier
2.	OMKAR SATYAPRAKASH BINDHANI (118ME0733)	2020 – 2021	Mobile Thermal Energy Storage forBuilding Space Cooling Application
3.	CHATUR GEMBALI (118ME0447)	2021 – 2022	Implementation of AI/ML tools for design and performance assessment ofevacuated u-tube solar collector
4.	ABHIRAM BISWAL (119ME0334)	2022 – 2023	Desiccant coated energy exchangerfor drying application
5.	PRATIKSHIT NANDA (119ME0357)	2022 – 2023	Numerical simulations on membranebased liquid desiccant dehumidification
6.	KARAN KUMAR PADHAN (119ME0358)	2022 – 2023	Nocturnal radiative cooling
7.	SHREETAMA SAHU (119ME0376)	2022 – 2023	Experimental analysis of series flowbased evacuated solar u tube collector
8.	PRITAM CHOUDHARY (119ME0708)	2022 – 2023	Experimental analysis on wire EDM process of single crystal Tungsten andits alloys
9.	KESHAVKANT PRASAD (119ME0732)	2022 – 2023	AI/ML Tool for evacuated U-tube solar collector system design and performance analyses
10.	RATUL SINHA (119ME0738)	2022 – 2023	AI/ML Tool for DCHE design and performance analyses
11.	PRIYATAM DAS (120ME0279)	2023 – 2024	Potentiality and Feasibility Comparison Analyses of Mobile Thermochemical Energy Storage based Refrigeration System with Vapor Absorption/Compression Refrigeration System for Building Space Cooling Application
12.	YENNI DEEKSHITHA (120ME0281)	2023 – 2024	Numerical Thermal Characterisation of Pure Single Crystal Tungsten Heat Switch
13.	SANJAY RAJ KUCHIPUDI (120ME0291)	2023 – 2024	Performance Analysis of Membrane-based Ionic Liquid Desiccant Dehumidifier Using PINNs
14.	SHUBHAM KUMAR PATI (120ME0318)	2023 – 2024	Potentiality of Geothermal Hotspots for Conversion of Wastewater into Freshwater
15.	SEEMA SARFA SOREN (120ME0761)	2023 – 2024	Parametric analysis of Evacuated U-Tube solar collector with parabolic reflector according to tropical climate
16.	SARA DEVENDRA CHHAJED (120ME0780)	2023 – 2024	Thermal behaviour of different energy efficient roof slab configurations - Numerical study

21. M-Tech Students guidance at other institutions as Co-Supervisor

Sl. No.	Name ofthe Student (Roll No.)	Institute	Duration	Project Title/research area
1.	KARTHIK K N (20EB1EE04)	Energy Institute, Bangalore	2020 – 2021	Desiccant coated energy exchanger-based air conditioningsystem
2.	NAQUEEB SHAAD JAGIRDAR (21EB1RE10)	Energy Institute, Bangalore	2021 – 2022	Implementation of AI/ML for design and performance prediction of latent heat storage
3.	PRATYUSH ANAND (21EB1RE13)	Energy Institute, Bangalore	2021 – 2022	Implementation of AI/ML for design and performance prediction ofsensible heat storage
18.	Ravi Prakash Sharma	SBU, Ranchi	2024-2025	Heat Switch for Space applications

22. Student's achievement worked under my guidance

Sl. No.	Name of the Student (Roll No.)	Institute	Program and Duration	Achievements
1.	KARAN KUMAR PRADHAN	NIT Rourkela	B-Tech 2022–23	Received Best B-Tech project from Foundation for ISHRAE, Research, Science, Technology (First) on the topic, **"Development of Nocturnal Radiative Cooling System"**.
2.	TIRTHARAJ PURUSHOTTAM BABRE (220ME5430)	NIT Rourkela	M-Tech 2020 – 2021	Selected for developing innovative solution for **"Portable cold storage for seasonable vegetables for rural areas"** in **National Innovation Foundation – India**
3.	VINIT MALIK (220ME5054)	NIT Rourkela	M-Tech 2020 – 2021	Part of the research team member representing Rourkela in **Global Mayor Challenge 2021** for **Economic Recovery & Inclusive Growth** theme.
4.	GAURAV PRIYADARSHI (519ME1011)	NIT Rourkela	Ph.D. 2021-2024	Received best paper award for **"Effect of Silica Gel Desiccant and Hydroxyethyl Cellulose Binder Coating Composition Variation on Water Uptake Capacity Across the Fin Tube Samples – Experimental Study"** at CIME-2022

5.	VINIT MALIK (220ME5054)	NIT Rourkela	M-Tech 2020 – 2021	Received best paper award for **"Comparison of pure and impure single-crystal tungsten magneto-resistive heat switch for space applications"** at CIME-2022
6.	Gautam Ranjan (522ME1002)	NIT Rourkela	Ph.D. 2022-ongoing	Selected in the **SAKURA-2024** science exchange program for the JAPAN cryogenics society
7.	Gautam Ranjan (522ME1002)	NIT Rourkela	Ph.D. 2022-ongoing	Got the best paper award at the ICFAMMT-24 conference, Ahmedabad
8.	Sameer Kumar Verma (522ME1012)	NIT Rourkela	Ph.D. 2022-ongoing	Received the **Department of Biotechnology (DBT)** Travel Grant to attend the 26th **International Conference on Theoretical and Applied Mechanics (ICTAM 2024), held in Daegu, South Korea**, from August 25 to 30, 2024.
9.	P.K.S. Tejes (520ME6005)	NIT Rourkela	Ph.D. 2021-ongoing	Selected for student exchange programe at **Universiti Putra Malaysia** during March 2025 to May 2025
10.	GAURAV PRIYADARSHI (519ME1011)	NIT Rourkela	Ph.D. 2021-2024	Received INAE fellowship to visit Université Paris-Saclay, France. (Currently working as Design Engineer at New Leaf Dynamic, Noida)

23. Funded projects

a) Principal Investigator (PI)

Sl. No.	Title	Sponsor	Value	Year
1.	Design and Development of Magneto Resistive Heat Switch **PI:** Dr. B. Kiran Naik **Co–PI:** Dr. S. N. Dash& Dr. K. S. Patel	ISRO	Rs. 29,70,000/- (40,000 USD)	2022 – 2024
2.	Development of Novel Multipurpose Liquid Desiccant Drying/Desalination System Using Hydrophobic Membrane as an Energy Exchanger **PI:** Dr. B. Kiran Naik **Co–PI:** Nil	SERB	Rs. 28,61,000/- (38,500 USD)	2020 – 2024
3.	Sustainable Hydrophilic Membrane for Enhancing Freshwater Generation and Waste Heat Recovery from Wet/Humid Flue Gas	SERB	Rs. 11,84,494/-	2023 – 2024
4.	Design and Development of Helical Threaded Desiccant Coated Heat Exchanger for HVAC Application **PI:** Dr. B. Kiran Naik **Co–PI:** Nil	NIT Rourkela	Rs. 2,00,000/- (2000 USD)	2020– 2021
5.	Framework on safety standards for commercializing low temperature thermochemical energy storage device in residential buildings	IGSTC	Rs. 4,00,480/-	2023 (Completed)
6.	Techno-economic Study on the Feasibility of District Cooling System (DCS) in India **PI:** Dr. B. Kiran Naik	Ozone cell, Ministry of Environment	Rs. 23,00000	2024-2025

b) Co-Investigator

Sl. No.	Title	Sponsor	Value	Year
1.	Design of Micro cryogenic coolers for phased array receiver **Role: Co-PI**	ISRO	Rs. 35,54,000/- (43,000 USD)	2022 – 2024

2.	Development and validation of an Artificial Intelligence based portable screening device for potentially malignant and malignant oral disorders by integrating narrow band imaging with autofluorescence and white light **Role: Co-PI**	ICMR	Rs. 6255558.00/- (75,000 USD)	2024 – 2027

c) Mentor

1.	Development of Nocturnal Radioactive Cooling Device **Role:** Mentor	ISHRAE	Rs. 50,000	2022 – 2023

24. Research projects worked during my Master's, Doctoral and postdoctoral study

Sl. No.	Title	Sponsor	Contribution	Year
1.	Design and Development of sorption based thermochemical energy storage for mobile thermal energy storage (M- TES) application	City of Surrey, Govt. Of Canada (Role: Team Member)	To design and develop a thermochemical energy storage of 2kW capacity using sorption material for mobile thermal energy storage (M-TES) application.	2019 – 2020
2.	Design and development of Cold plateheat exchanger	Terella Energy Systems(Role: As a part of QESscholar industrial internship)	To design and develop a graphitebased cold plate heatexchanger of 0.5 kWcapacity	Feb. 2020 – March 2020
3.	Development of High Temperature Thermal Energy Storage System for Solar Thermal Power Plant	DST, Govt. of India (Role: Project Engineer)	To assist in designand development of high temperature thermochemical energy storage system of 10MJcapacity.	Feb. 2019 – May 2019
4.	Assessment of various energysaving techniques in HVAC systems employed in CPL	Cadila pharmaceuticalsPvt. Limited (CPL) (Role: Project Assistance)	Assisted in suggesting various energy conservation techniquesthat can be implemented for improving the HVACplant performance	December 2016 – June 2017
5.	Cooling load evaluation for academic buildings	As a part of teaching assistance duty for refrigeration and air conditioning course (Role: Termproject advisor)	Suggested various energy saving methodology for reducing the cooling load in anair- conditioned space.	September and October months of 2016, 2017, 2018.

6.	Design and development of solar driven liquid desiccant-based dehumidification system components	IIT Guwahati (as a part of doctoral thesis)	Designed and developed a solar driven liquid desiccant dehumidification system which can be commercialized for drying agricultural products as well as for air conditioning purpose.	2016 – 2019
7.	Performance verification ofwater cooled and air-cooledcondenser-based A/C plant	As a part of M – tech thesis	Provided a solution for converting waterloss fromcoolingtower to useful drinking water. Suggested a suitable condenser in HVAC system applications according to humid subtropicalclimate.	2013 – 2014

25. Funded outreach activities

Sl. No.	Title	Sponsor	Value	Year
1.	2nd International Conference on Innovations In Thermo-Fluid Engineering And Sciences [ICITFES - 2025]	ANRF	Rs. 3,00,000/-	2025
2.	Capacity Building Course for OSRTC Professionals **Role:** Principal Coordinator	OSRTC	Rs. 3,00,000/-	2024
3.	Recent Advancements in Membrane-based Wastewater Treatment [RAMWT-2023] **Role:** Principal Coordinator	SERB – ISHRAE	Rs. 45,000/-	2023
4.	Lecture Series in Mechanical Engineering to commemorate Diamond jubilee year of NIT Rourkela (Virtual mode) **Role:** Principal Coordinator	NIT Rourkela	Rs. 11,000/-	2022
5.	High-Performance Computing and AI Predictive Tools in Fluids and Thermal **Role:** Co–Coordinator	SERB	Rs. 5,00,000/-	2022
6.	A high-end training workshop on thermal energy storage in building applications to train research scholars and faculties in thematic area–energy and buildings under Accelerate Vignan– Karyashala scheme. **Role:** Principal Coordinator	SERB	Rs. 1,50,000/-	2021

7.	A Five Day Online AICTE Training and Learning (ATAL) Academic FDP Programme on Fuel Cell Technology [FCT-2021] **Role:** Co–Coordinator	AICTE	Rs. 93,000/-	2021
8.	A Five Day Online AICTE Training and Learning (ATAL) Academic FDP Program on Multidisciplinary Research in the Field of Fluids **Role:** Co–Coordinator	AICTE	Rs. 93,000/-	2021

26. Invited talks/Session Chair/Conference Technical Committee

Sl. No.	Title	Lecture Date	Lecture place	Programme Name
1.	Atmospheric Water Harvesting Using Sustainable Liquid Desiccant Desalination System	6th June 2023	Pondicherry University	SERB Accelerate Vigyan (AV) Karyashala Awareness on Sustainable Energy Management and Harvesting Techniques
2.	Session Chair	9th–12th March 2023	Mahatma Gandhi University, Kottayam, Kerala, India	International Workshop and Conference on Membrane Assisted Water Purification Processes
3.	Recent Advancements in Sustainable Liquid Desiccant Desalination Systems	15th Dec. 2022	C. V. Raman Global University, Bhubaneswar	International Conference on Evolutionary Manufacturing, Design, And Operational Practices For Sustainability" (ICEMDOPS-2022)
4.	Session Chair	26th Nov. 2022	NIT Rourkela	4th Innovative Product Design and Intelligent Manufacturing Systems Conference (IPDIMS2021)
5.	Sensitization webinar on ISHRAE,	12th Nov. 2022	Sarala Birla University, Ranchi	Webinar
6.	Fostering research excellence beyond the expectations	18th July 2022	IIIT Kottayam	SERB Accelerate Vigyan (AV) Scheme, Karyashala on Methods for Creating a Quality Research Article: Software and Writing Perspective

7.	Basic Simulations on COMSOL Multiphysics	1st July 2022	NIT Rourkela	Fundamentals of Computational Fluid Dynamics: A Practical Approach
8.	Session Chair	23rd April 2022	RGMCET	International Conference on Contemporary Innovations in Mechanical Engineering
9.	Research career opportunities in medical devices through additive manufacturing	7th Feb. 2022	NIT Rourkela	SERB Accelerate Vigyan (AV) Scheme, Karyashala on Next generation Medical Devices: Focusing on therapeutic and diagnosis Series-1
10.	Research Career Opportunities and Support	4th Feb 2022	Chandigarh University	One Week Faculty Development Programme On Research Essentials
11.	Advancements in Vapour absorption-based air conditioning/drying cum desalination system	28th Jan 2022	NITT Bangalore	One-day virtual seminar on Recent trends in HVAC&R
12.	Session Chair	5th Oct. 2021	University of Zaragoza – Universitat Rovira i Virgili, Spain	International Conference on Polygeneration (ICP) – 2021
13.	Recent Advancements in Solar Driven Liquid Desiccant Air ConditioningSystems	3rd Sept.2021	RGM College of Engineering and Technology –ISHRAE Bhubaneswar sub-chapter	Energy Modelling and Simulation of HVAC systems
14.	Implementation of Data-Driven Models for Design and Performance Analyses of Thermal Systems	31st July2021	Guru Ghasidas Viswavidyalaya, Bilaspur (Central University)	National Workshop on Emerging Trend in Research Areas and Opportunities in Science and Technology
15.	Research Excellence – Not Beyond your Reach	20th June 2021	NIT Tiruchirappalli	SERB Accelerate Vigyan (AV) Scheme, Karyashala (High-End Workshops) on Methods and tools for effective dissemination of research ideas and findings
16.	Sorption based mobile thermal energy storage	17th Feb 2021	IIITDM, Kurnool	Online Faculty Development Program On "Nanomaterials: Experimental Design &Theoretical Modeling"

17.	Future energy transition towards sustainability	15 Sep 2020	ISHRAE Bhubaneswar sub-chapter	Invited Talk, ISHRAE Bhubaneswar sub-chapter
18.	Recent Advancements in Solar Driven Liquid Sorption Air Conditioning System and Its Future Perspectives	2nd Sep 2020	TKM College of Engineering, Kollam, Kerela	FDP on Advanced Fluid Mechanics and Heat Transfer forAerospace Applications

27. Membership in professional body

- **Associate member** of Indian Society of Heating, Refrigeration, and Air-conditioning engineers **(ISHRAE) (Membership ID: 22265)**.
- Life Member of Space Society of Mechanical Engineers (SSME) **(Membership Id: LM-0393).**
- Life Member of the Indian Meteorological Society (IMS) (Membership Id: LM-3938), 2024.
- Life Member of Indian Cryogenic Council (ICC) (Membership Id: LM-952), 2024.

27. Extra–circular activities

- **Winner** at school level quizzes during the year 2001-2002 ***(Role: Team leader)***.
- Achieved **Mark of Appreciation** from JNTUA Universityfor organizing **Science & Technology Exhibition – 2011.**
- Achieved **Mark of Appreciation** from Department of mechanical engineering, JNTUA University, for organizingNational Level Technical Symposium **Dynamechs 2012.**
- Organized several workshops on behalf of **Indian Society of Heating, Refrigeration and Air-conditioning engineers (ISHRAE) – Guwahati Sub chapter**.
- Attended a workshop on **"Recent Trends in Renewable Energy Utilization Technologies"** during 8^{th} –12^{th} May 2019.
- Participated in **NSERC Energy Storage Technology Winter School** at SFU, BC, Canada in February 2020.

28. Accolades received

- **NIT Rourkela official:** https://www.facebook.com/nitrkl1/photos/a.2069921623074825/4609378969129065/
- **Monday Morning (student media body of NIT Rourkela):** https://mondaymorning.nitrkl.ac.in/article/2021/09/27/3097-deliberating-for-a--sustainable-future-at-the-brics- young-scientist-conclave-2021-dr-bukke-kiran-naik/
- **Article about me in Queen Elizabeth Scholars Canada Annual Report 21-22:** https://shorturl.at/JLVY3

- **PECFAR fellowship award ceremony from IGSTC 21-22:** https://shorturl.at/zCS45

29 Reviewer

- Reviewer of energy and thermal science related International Journals such as **Energy**, **Thermal Science and Engineering progress, Applied Energy, Hydrogen Energy, Journal of Magnetism and Magnetic Materials** – Elsevier Journals, **Int. J. Ambient Energy** – Taylor and Francis**,** and **Sustainability** – MDPI Journal.
- **DST-INSPIRE MANAK** scheme project proposals reviewer.

30 Personal Information

Date of Birth	:	27/01/1991
Place of Birth	:	Gajuwaka, Visakhapatnam District, Andhra Pradesh, INDIA
Nationality	:	Indian
Marital Status	:	Married

31 Declaration

I hereby declare that the above-furnished information is trueand correct to thebest of my knowledge.

Date: March 2025 (B. Kiran Naik)