

Curriculum Vitae

Name (Surname, First name, Last name): **Dr. Bukke Kiran Naik**

Contact details: Assistant Professor (Grade-II),
Faculty of Mechanical Engineering Department,
National Institute of Technology (NIT) Rourkela,
Sector 1, Rourkela, Odisha-769008, India.
Mobile: +91-9435686059.
E-mail: naikkb@nitrkl.ac.in; k.bukke@gmail.com; kbukke@sfu.ca
Skype Id.: kirannaik302



Academic qualifications:

Examination / Degree	Institute/ College/ School	Year of Completion	Subjects studied/ Specialization
Ph.D.	Indian Institute of Technology Guwahati	2014 – 2019 (Thesis Defended: 17 th January 2019)	Department: Mechanical Engineering; Specialization: Fluid & Thermal PhD title: Design and Performance Assessments of Solar Driven Liquid Desiccant Air Conditioning System Components.
M. Tech	Indian Institute of Technology Guwahati	2014	Department: Mechanical Engineering; Specialization: Fluid & Thermal
B. Tech	Jawaharlal Nehru Technological University Anantapur	2012	Department: Mechanical Engineering
XII (HSC)	Narayana Junior College, Visakhapatnam	2008	Subjects studied: Mathematics, Physics and Chemistry
X (SSC)	Visakha Central School, Visakhapatnam	2006	Major subjects Studied: Mathematics, Science and Social Science

Research Experience:

Institute	Position held	Nature of work	Year
Indian Institute of Technology Guwahati	Project Engineer	Research	Feb. 2019 – May 2019
Simon Fraser University, Burnaby, Canada	Queen Elizabeth Postdoctoral Fellow	Research	September 2019 – March 2020
National Institute of Technology (NIT) Rourkela	Assistant Professor (Grade-II)	Teaching and Research	April 2020 –Current

Research Interests: Numerical and experimental investigations on energy efficient thermal systems, Design and performance optimization of thermal systems, developing novel materials for sorption thermal energy storage applications.

Experimental Expertise: Sorption based absorption heat transformer, Flat plate/evacuated tube solar collectors, cooling tower, air cooled and water cooled condensers, evaporator, heat exchanger design and vapor compression refrigeration system.

Software Skills: Matlab – Simulink, Comsol Multiphysics, Design of Experiments (DOE) and AutoCAD.

Awards/Honors

1. **Queen Elizabeth Scholars (QES) Fellowship** from **Universities Canada** for pursuing **Postdoctoral studies** at Simon Fraser University (SFU), Burnaby, Canada for one year (September 2019 – September 2020).
2. **CCSTDS (2019) travel fellowship award** for Young Scientist/Research Scholar from **INSA/CSIR/DAE-BRNS-CCSTDS** for attending international conference (ICP 2019) held at **Kyushu University, Fukuoka, Japan**.
3. Research paper titled **Energy, Exergy and Entransy Analyses of Liquid Desiccant Regenerator** was among the 20 high-class papers shortlisted from the extended abstracts of the **ISHPC 2017 conference** held at **Waseda University, Tokyo, Japan** for a special issue in the prestigious journal “**International Journal of Refrigeration (IJR)**”.
4. **SERB – ITS Travel Grant (2017)** for Young Scientist/Research Scholar from **Department of Science and Technology (DST)**, Government of India for attending international conference (ISHPC 2017) held at **Waseda University, Tokyo, Japan**.
5. Received **honorarium** for working in a consultancy project, “**Assessment of various energy saving techniques in HVAC systems employed in CPL**” from Cadila pharmaceuticals Pvt. Limited (CPL) during the year 2017.
6. Received **Merit Recognition Award** for good performance in the 7th NIIT National I.T Aptitude test conducted in the year 2011.
7. Received **Merit Award** for good performance in XII (HSC) from **Visakhapatnam steel plant thrift & credit society limited** during the year 2008.

Scholarships received

1. **Research Assistantship** from **MHRD**, Government of India, for the period July 2014 to June 2019.
2. **Teaching Assistantship (TA)**, from **MHRD**, Government of India, for the period June 2012 to May 2014.

Professional responsibilities

1. **Student’s activity chair & CWC Member** for ISHRAE Guwahati sub – chapter during April 2017 – March 2018.
2. **K – 12 chair & CWC Member** for ISHRAE Guwahati sub – chapter during April 2016 – March 2017.
3. **PG Senator** at IIT Guwahati during April 2015 – March 2016.

List of Publications

Journals (Published/accepted: 14; Under review: 2):

Sl. No.	Details of publications
1.	B. Kiran Naik , Bharat Singh, Neelam Dutta, Senthilmurugan Subbiah, P. Muthukumar (2020), Fluid to Liquid Membrane Energy Exchanger for Simultaneous Liquid Desiccant Regeneration and Desalination Applications– Theoretical and Experimental Analyses, Energy Conversion and Management . (<i>Impact factor: 7.2</i>) DOI: https://doi.org/10.1016/j.enconman.2019.112291
2.	B. Kiran Naik and P. Muthukumar (2020), Parametric and Performance Investigations on Novel Multipurpose Liquid Desiccant Drying/Desalination System, Heat Transfer Engineering . (<i>Accepted for publication</i>) (<i>Import factor: 1.7</i>)

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3. **B. Kiran Naik** and P. Muthukumar (2019), Experimental Investigation and Parametric Studies on Structured Packing chamber based Liquid Desiccant Dehumidification and Regeneration Systems, **Building and Environment**. DOI: <https://doi.org/10.1016/j.buildenv.2018.12.028> (Import factor: 4.8)
 4. **B. Kiran Naik**, Mrinal Bhowmik and P. Muthukumar (2018), Experimental Investigation and Numerical Modelling on the Performance Assessments of Evacuated U – Tube Solar Collector Systems, **Renewable Energy**. DOI: <https://doi.org/10.1016/j.renene.2018.09.066> (Import factor: 5.4)
 5. **B. Kiran Naik**, P. Muthukumar and P. Sunil kumar (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**. (Import factor: 3.6) DOI: <https://doi.org/10.1016/j.ijthermalsci.2018.05.029>
B. Kiran Naik and P. Muthukumar (2018), Energy, Exergy and Entransy Analyses of Liquid Desiccant Regenerator, **International Journal of Refrigeration**. (Import factor: 3.4) DOI: <https://doi.org/10.1016/j.ijrefrig.2018.08.016>
 6. **B. Kiran Naik**, P. Muthukumar and C. Bhattacharya (2018), Thermal Modelling and Parametric Investigation on Coupled Heat and Mass Transfer Processes Occured In a Packed Tower, **Heat and Mass Transfer**. DOI: <https://doi.org/10.1007/s00231-018-2440-1> (Import factor: 1.6)
 7. **B. Kiran Naik** and P. Muthukumar (2018), Thermal Performance Assessment of Evacuated U – Tube Solar Collector, **Sadhana (article in press)**. (Import factor: 0.8) DOI: <https://doi.org/10.1007/s12046-018-0974-z>
 8. **B. Kiran Naik** and P. Muthukumar (2017), A Novel Approach for Performance Assessment of Mechanical Draft Wet Cooling Towers, **Applied Thermal Engineering**. (Import factor: 4.0) DOI: <https://doi.org/10.1016/j.applthermaleng.2017.04.042>
 9. P. Muthukumar, **B. Kiran Naik** and A. Goswami (2018), Performance Analysis of Mechanical Draft Cross Flow – Cooling Towers Employed in a Subtropical Region, **J. Ins. Eng. (India): Series C**. DOI: <https://doi.org/10.1007/s40032-018-0441-y>
 10. **B. Kiran Naik**, and P. Muthukumar (2017), Empirical Correlation Based Models for Estimation of Air Cooled and Water Cooled Condenser’s Performance, **Energy Procedia**. (Cite Score: 1.4) DOI: <https://doi.org/10.1016/j.egypro.2017.03.070>
 11. **B. Kiran Naik**, V. Choudhary, P. Muthukumar and C. Somayaji (2017), Performance Assessment of a Counter 1.4 Flow Cooling Tower – Unique Approach, **Energy Procedia**. (Cite Score: 1.4) DOI: <https://doi.org/10.1016/j.egypro.2017.03.056>
 12. **B. Kiran Naik**, Ankit Varshney, P. Muthukumar and C. Somayaji (2016), Modelling and Performance Analysis 1.4 of U Type Evacuated Tube Solar Collector Using Different Working Fluids, **Energy Procedia**. (Cite Score: 1.4) DOI: <https://doi.org/10.1016/j.egypro.2016.11.189>
 13. **B. Kiran Naik**, Ankit Soni, Amit kumar, P. Muthukumar and C. Somayaji (2016), Coupled Heat and Mass Transfer Analysis of an Adiabatic Dehumidifier – Unique Approach, **Energy Procedia**. (Cite Score: 1.4) DOI: <https://doi.org/10.1016/j.egypro.2016.11.198>
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Conferences (Presented: 14):

Sl. No.	Details of International Conferences Presented
1.	B. Kiran Naik and P. Muthukumar, Novel Approach For Predicting The Performance of The Evacuated U – Tube Solar Collector Integrated With Parabolic Reflector. 5th International Conference on Computational Methods for Thermal Problems (THERMACOMP – 2018) , Indian Institute of Science, Bangalore, July 9-11, 2018.
2.	B. Kiran Naik , and P. Muthukumar, Energy, Entransy and Exergy Analyses of a Liquid Desiccant Regenerator, International Sorption Heat Pump Conference (ISHPC – 2017) , Waseda University, Tokyo, Japan, Aug. 7-10, 2017.

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3. **B. Kiran Naik**, V. Choudhary, P. Muthukumar and C. Somayaji, Performance Assessment of a Counter Flow Cooling Tower – Unique Approach, **International Conference on Refrigeration and Air Conditioning (RAAR-2016)**, Bhubaneswar, November 10-12, 2016.
 4. **B. Kiran Naik**, and P. Muthukumar, Empirical Correlation Based Models for Estimation of Air Cooled And Water Cooled Condenser's Performance, **International Conference on Refrigeration and Air Conditioning (RAAR-2016)**, Bhubaneswar, November 10-12, 2016.
 5. **B. Kiran Naik**, P. Muthukumar and C. Somayaji, Thermodynamic Analysis of Liquid Desiccant Dehumidification System - A Novel Approach, **23rd National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference IHMTC**, ISRO Thiruvananthapuram, India, Dec. 17-20, 2015.
 6. **B. Kiran Naik**, Ankit Soni, Amit kumar, P. Muthukumar and C. Somayaji, Coupled Heat and Mass Transfer Analysis of an Adiabatic Dehumidifier – Unique Approach, **5th International Conference on Advances in Energy Research (ICAER -2015)**, IIT Bombay, Mumbai, India, Dec. 15-17, 2015.
 7. **B. Kiran Naik**, Ankit Varshney, P. Muthukumar and C. Somayaji, Modelling and Performance Analysis of U Type Evacuated Tube Solar Collector Using Different Working Fluids, **5th International Conference on Advances in Energy Research (ICAER -2015)**, IIT Bombay, Mumbai, India, Dec. 15-17, 2015.
 8. **B. Kiran Naik**, Amit Kumar, Ankit Soni, P. Muthukumar and C. Somayaji, Coupled Heat and Mass Transfer Analysis of an Adiabatic Regenerator – Unique Approach, **International Conference On Aerospace and Mechanical Engineering (ICAME - 2015)**, Kerala, India, Dec. 14-16, 2015.
 9. **B. Kiran Naik** and P. Muthukumar, Performance Investigations of a Cross-Flow Induced Draft Cooling Tower Employed in a Water Cooled Condenser of 900 TR A/C Plant. **International Conference on Emerging Trends in Renewable Energy (ICETRE-2013)**, Bhubaneswar, India, 27-28 December 2013.
 10. **B. Kiran Naik**, V. Choudhary, P. Muthukumar and C. Somayaji, Performance Assessment of a Cross Flow Cooling Tower – A Simplified Approach, **4th National Conference on Refrigeration and Air Conditioning (NCRAC-2015)**, IIT Madras - Rajalakshmi Engineering College (Jointly), Chennai, October 28-30, 2015.
 11. **B. Kiran Naik** and P. Muthukumar, Energy Entransy and Exergy Analyses of an Air Cooled Condenser. **12th International Conference on Thermal Engineering: Theory and Applications (ICTEA – 2018)**, Pandit Deendayal Petroleum University (PDPU), Gandhinagar, India, 23-26 February 2019.
 12. 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)**, Kyushu University, Fukuoka, Japan, May 15–17, 2019.
 13. **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)**, Kyushu University, Fukuoka, Japan, May 15–17, 2019.
 14. **B. Kiran Naik**, P. Muthukumar, Performance Assessment and Comparison of Desiccant Coated Heat Exchanger Type and Desiccant Wheel Type Dehumidification Systems, Proceedings of the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2019), December 28-31, 2019, IIT Roorkee, Roorkee, India.
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Google Scholar: Citations: **123**; h – index: **7**; i10 – index: **5** (As on April 2020).

Website

Google scholar link: <https://scholar.google.co.in/citations?user=V0vPItQAAAAJ&hl=en>

Research gate link: https://www.researchgate.net/profile/Kiran_Bukke/info

Membership in professional body

- **Associate member** of Indian Society of Heating, Refrigeration and Air-conditioning engineers (**ISHRAE**).

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	<i>City of Surrey, Govt. of Canada (Role: Team Member)</i>	➤ To design and develop a thermochemical energy storage of 2 kW capacity using sorption material for mobile thermal energy storage (M-TES) application.	2019 – 2020
2.	Design and development of Cold plate heat exchanger	<i>Terella Energy Systems (Role: As a part of QES scholar industrial internship)</i>	➤ To design and develop a graphite based cold plate heat exchanger of 0.5 kW capacity	Feb. 2020 – March 2020
3.	Development of High Temperature Thermal Energy Storage System for Solar Thermal Power Plant	DST, Govt. of India (<i>Role: Project Engineer</i>)	➤ To assist in design and development of high temperature thermochemical energy storage system of 10 MJ capacity.	Feb. 2019 – May 2019
4.	Assessment of various energy saving techniques in HVAC systems employed in CPL	Cadila pharmaceuticals Pvt. Limited (CPL) (<i>Role: Project Assistance</i>)	➤ Assisted in suggesting various energy conservation techniques that can be implemented for improving the HVAC plant 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 (<i>Role: Term project advisor</i>)	➤ Suggested various energy saving methodology for reducing the cooling load in an air 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 (<i>as a part of doctoral thesis</i>)	➤ 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 of water cooled and air cooled condenser based A/C plant	As a part of M – tech thesis	➤ Provided a solution for converting water loss from cooling tower to useful drinking water. ➤ Suggested a suitable condenser in HVAC system applications according to humid subtropical climate.	2013 – 2014

Extra-circular activities

- **Winner** at school level quizzes during the year 2001-2002 (*Role: Team leader*).
- Achieved **Mark of Appreciation** from JNTUA University for organizing **Science & Technology Exhibition – 2011**.
- Achieved **Mark of Appreciation** from Department of mechanical engineering, JNTUA University, for organizing National Level Technical Symposium **Dynamechs 2012**.
- Organized several workshops on behalf of **Indian Society of Heating, Refrigeration and Air-conditioning engineers (ISHRAE) – Guwahati Sub chapter**.

Personal Information

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

Declaration

I hereby declare that the above-furnished information is true and correct to the best of my knowledge.



Date: April 2020

(B. Kiran Naik)