

Dr. Rakesh Bumataria

(Lecturer, GES-Class-II, Government of Gujarat)

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Date of Birth: 5th June 1990



Academic Qualification

- **PhD** in Mechanical Engineering from Gujarat Technological University (GTU), Ahmedabad, 2021.
 - **Research Title:** An Investigation on Thermal Performance of Cylindrical Heat Pipe Using Hybrid Nanofluid
- **Master of Engineering** (M.E.) in Thermal Science from The Maharaja Sayajirao University (M.S. University) of Baroda, Vadodara, 2013.
 - **Research Title:** Thermal Analysis of Stirling Cycle Engine Using Schmidt Analysis
- **Bachelor of Engineering** (B.E.) in Mechanical Engineering from Birla Vishwakarma Mahavidyalaya (BVM) Engineering College, Vallabh Vidyanagar affiliated to Sardar Patel University, Vallabh Vidyanagar, 2011.

Experience (Total: 09 Years, 03 Months)

- Lecturer in Mechanical Engineering Department at Government Polytechnic, Porbandar from 5th November 2016 to till date.
- Assistant Professor in Mechanical Engineering Department at Faculty of Technology, Marwadi Education Foundations Group of Institutions, Rajkot from 1st June 2015 to 4th November 2016.
- Assistant Professor in Mechanical Engineering Department at Parul Institute of Engineering & Technology (DS), Vadodara from 1st August 2013 to 30th May 2015.

Research Interest

- Heat Pipe, Nanofluid, Hybrid Nanofluid, Artificial Neural Network (ANN)

Research Contribution

- Reviewed research articles in various international Journals and conferences as a reviewer like International Journal of Ambient Energy, Journal of Thermal Engineering and International Conference on Recent Progress in Material Science and Mechanical Engineering.
- Research Grant of Rs. 25,000/- had been received from Gujarat Technological University (GTU), Ahmedabad under SSIP IP filling process for Indian Patent.

Research Publication (Total:19)

Journal Papers (Total:12)

1. **R. K. Bumataria** and N. K. Patel, "Review of Stirling Engines for Pumping Water using Solar Energy as a source of Power," International Journal of Engineering Research and Applications, vol. 3, no. 1, pp. 864–868, 2013.
2. **R. K. Bumataria** and N. K. Patel, "Stirling Engine Performance Prediction Using Schmidt Analysis by Considering Different Losses," International Journal of Research in Engineering and Technology, vol. 2, no. 8, pp. 433–442, 2013.
3. Pankaj Anadani, **Rakesh K. Bumataria**, "Performance Characteristic prediction of Allison and GPU-3 Stirling Engine Using Mathematical Model," International Journal of Advance Engineering and Research Development, vol. 2, no. 2, pp. 248–255, 2015.
4. Sharvil Shah, **Rakesh K. Bumataria**, Darpan V. Patel, "Experimental Analysis of Convergent, Convergent Divergent nozzles at various mass flow rates for pressure ratio and pressure along the length of nozzle," International Journal of Advance Research in Engineering, Science & Technology, vol. 2, no. 4, pp. 1–5, 2015.

5. S. D. Shah, **R. K. Bumataria**, and H. V Bathani, "Experimental Investigating of Machining Parameters For EDM Using U-Shaped Electrode Of AISI P20 Tool Steel across Ag-W Materials that," *International Journal of Advance Research in Engineering, Science & Technology*, vol. 2, no. 4, pp. 1–9, 2015.
6. S. D. Shah, **R. K. Bumataria**, A. M. Choudhary, and G. G. Bandhanja, "PRIMARY FLIGHT CONTROL OF BOEING-777," *International Journal of Advance Research in Engineering, Science & Technology*, vol. 2, no. 5, pp. 1–7, 2015.
7. K. N. Pethani, N. K. Patel, and **R. K. Bumataria**, "An Experimental Study on the Performance and Emission Characteristics of Single Cylinder Compressed Ignition Engine Using Mahua Biodiesel with Additives," *International Journal of Scientific Research in Science, Engineering and Technology*, vol. 1, no. 4, pp. 258–264, 2015.
8. **R. K. Bumataria**, P. Modha, M. Makwana, K. Makwana, and N. Mandhra, "A New Horizon with Enhance Heat Transfer Rate Using Heat Pipe for Compact Thermal System-A Review," *International Journal of Scientific Research in Mechanical and Materials Engineering*, vol. 2, no. 3, pp. 8–16, 2018.
9. **R. K. Bumataria**, N. K. Chavda, and H. Panchal, "Current research aspects in mono and hybrid nanofluid based heat pipe technologies," *Heliyon*, vol. 5, no. April, pp. 1–7, 2019. (**Elsevier, Scopus**)
10. **R. Bumataria**, N. K. Chavda, and A. H. Nalbandh, "Performance evaluation of the cylindrical shaped heat pipe utilizing water-based CuO and ZnO hybrid nanofluids," *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, vol. 00, no. 00, pp. 1–16, 2020. (**Taylor & Francis, SCIE**)
11. K. Jadeja, K. Agola, and **R. Bumataria**, "Experimental Investigation on Single Cylinder 4Stroke Diesel Engine Using Nanofluids as A Coolant to Compact the System," *International Journal of Engines and Gas Turbines*, vol. 7, no. 1, pp. 12–25, 2021.

12. **R. Bumataria**, and N. Chavda" Heat load and orientation impacts in cylindrical heat pipes using copper oxide, aluminium oxide, and zinc oxide nanofluids" International Journal of Ambient Energy,2021. (**Taylor & Francis, Scopus**)
13. N. Chavda, and **R. Bumataria** "Effect of particle size and concentration on thermal performance of cylindrical shaped heat pipe using silver: DI water nanofluid" International Journal of Ambient Energy,2022. (**Taylor & Francis, Scopus**)
14. K. Jadeja, **R. Bumataria**, and N. Chavda "Nanofluid as a Coolant in Internal Combustion Engine" International Journal of Ambient Energy,2022. (**Taylor & Francis, Scopus**)

Conference Papers (Total: 03)

1. **R. K. Bumataria**, S. D. Shah, and D. V Patel, "Stirling Engine Prototype Design, Construction and Performance test," in National Conference on Recent Research & Development in Core Disciplines of Engineering, 2015, pp. 1–9.
2. A. Khudaiwala, M. K. Mistry, and **R. Bumataria**, "Experimental Investigation on Effect of Various Insulating Materials and its thickness on Performance of Vapour Compression Refrigeration System," in International Conference on Recent Progress in Material science and Mechanical Engineering, 2021.
3. **R. Bumataria** and N. Chavda, "Influence of Wick Layers on the Heat Transport Properties of CuO / DI Water Nanofluid filled Screen Mesh Wicked Heat Pipe," in International Conference on Recent Progress in Material Science and Mechanical Engineering, 2021.

Patent (Total:04)

1. **R. K. Bumataria**, N. K. Chavda, and A. H. Nalbandh, filed and published an Indian Patent on "Water Based CUO (Copper Oxide) and ZNO (Zinc Oxide) Hybrid Nanofluids Deals with Thermal Management Device," 2020.

2. M. M. Vala, F. S. Umrigar, L. B. Zala, J. K. Kalaria, **R. K. Bumataria**, and V. R. Patel, filed and published an Indian Patent on "Route Bus Service Controlling and Improve Frequency in Route Management," 2020.
3. **R. K. Bumataria**, N. K. Chavda, and M. M. Vala, filed and published an Indian Patent on "The Thermal Device Filled with DI Water-Based Aluminum Oxide and Copper Oxide Hybrid Nanofluid," 2021.
4. A. N. Khudaiwala, D. M. K. Mistry, **R. K. Bumataria**, B. D. Parmar, V. D. Sonara, and J.M. Bhatt, filed and published an Indian Patent on "An Investigation on Various Insulating Materials and Thickness for Vapour Compression Refrigeration System," 2021.

Academic Achievement

- Designed Gujarat Technology University (GTU) Curriculum for "Engineering Thermodynamic" Subject of 3rd Semester, Mechanical Engineering programme.

Expert Talk Delivered (Total:06)

1. Expert talk delivered on "Career Counselling & Guidance" on 23rd December 2017 at Dr. V. R. Godhaniya College of Engineering & Technology, Porbandar.
2. Expert talk delivered in Webinar on "Basics of Air Compressor and its Industrial Application", on 22nd April 2020 at Parul University, Vadodara.
3. Expert talk delivered in Webinar on "Condensers and its Industrial Applications" on 14th May 2020 at Government Polytechnic, Porbandar.
4. Expert talk delivered in Webinar Series on "Start-up opportunities on heat pipe" on 20th May 2020 at Government Engineering College, Patan.
5. Expert talk delivered in Webinar on "Nanofluids: Concept, Preparation and Characterization" on 4th July 2020 at Government Polytechnic, Porbandar.
6. Expert talk delivered in Webinar on "Engine Design Modifications When Used with Alternative Fuels", on 16th June 2021 at Parul University, Vadodara.

STTP/Workshop/Training Attained (Total:07)

1. Emerging trends in major thrust areas of Mechanical Engineering organized by DTE, Gandhinagar from 26th February 2018 to 9th March 2018.
2. Induction Program, Phase-I organized by NITTTR, Bhopal from 23rd July 2018 to 3rd August 2018.
3. Heat Exchangers: Fundamentals and Design Analysis organized by NPTEL from 1st July 2018 to 1st October 2018.
4. Faculty Development program "Student Innovation and Start-ups" organized by EDII, Gandhinagar from 25th February 2019 to 1st March 2019.
5. Induction Program, Phase-II organized by NITTTR, Bhopal from 22nd July 2019 to 2nd August 2019.
6. Comprehensive Online Intellectual Property organized by i-HUB, Gujarat from 6th July 2020 to 14th September 2020.
7. Designing Good Question Papers organized by NITTTR, Bhopal from 17th January 2022 to 21st January 2022.

Professional Membership

1. Life member of "Indian Society for Technical Education (ISTE)" since 2014 (Member No.: LM-94759).
2. Life member of "International Association of Engineers (IAENG)" since 2016 (Member No.: 163311).

Administrative Activities

1. Institute level Time Table Coordinator
2. Institute level Online Teaching Coordinator
3. Institute level COGENT Coordinator
4. Institute level Newsletter Coordinator
5. Final year Student's project Coordinator
6. Thermal Engineering Lab In-Charge

7. Departmental Newsletter Coordinator
8. Purchase and Write-off Coordinator

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