CURRICULUM VITAE

Name: Dr. Arvind Kumar

Designation: Associate Professor

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Educational Qualification

B E(Mechanical), M Tech(Thermal), PhD (Heat Transfer)

Experience: 19 Years

Specialization: Thermal Engineering, Heat Transfer, Solar Energy, Nano fluid(s)

Membership of professional bodies: ISHMT, NSFMFP, ISEES

Number of P.G. Projects guided: Awarded: 26, Ongoing: 01

Number PhD Supervised: Awarded: 05, Submitted: 00, Ongoing: 03

Publications

- **International Journals**

Title of Paper	Name of Journal	Volume, Page Number & Year	*Author(s)
Heat transfer and friction correlations for artificially roughened solar air heater duct with discrete W-shaped ribs	Energy Conversion and Management (**Elsevier** Publications) **SCI**	Vol.50, Issue 8, Aug 2009 2106-2117	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Thermal performance of packed bed solar air heater	Proceedings of **IEEE** Journal **SCI/Scopus**	July 2013 438-442	Prashant Tiwari *Arvind Kumar R M. Sarviya
Thermodynamic Analysis of Year Round Air Conditioning System for Variable Wet bulb Temperature of Outlet Air of Pre-heating Coil (Cold and Dry Weather**)**	International Journal of Mechanical Engineering and Technology (IJMET) **Scopus**	Volume 6, Issue 4, April 2015, 109-116	Shankar Kumar, S.P.S. Rajput *Arvind Kumar
Sustainable Development through Efficient Solar Air Heaters	Journal of Environmental Research and Development	Vol.2, No.4, April-June 2008. 796-807	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Thermodynamic Simulation of Year Round Air Conditioning System for Variable Relative Humidity of Atmospheric Air	International Journal of Advanced Research in Engineering & Technology (IJARET)	Volume 4, Issue 9, Sept. 2015 280-285	Shankar Kumar S.P.S. Rajput *Arvind Kumar
Thermodynamic Simulation of Year Round Air Conditioning System for Variable rotational speed of desiccant wheel	International Journal of Research in Engineering and Technology (IJRET).	Volume 4, Issue 9 Sept. 2015 280-285	Shankar Kumar S.P.S. Rajput *Arvind Kumar

A Review on Heat Transfer from Combined Conduction and Convection through Perforated Fins	SSRG International Journal of Mechanical Engineering (SSRG-IJME)	Volume 3 Issue 2 – February 2016,1-5	Sudhansu Singh *Arvind Kumar
Effect of addition of nanoparticles on tribological properties of lubricants – A review	International Research Journal of Engineering and Technology (IRJET)	Vol.5, Issue 5, May 2018	Ravin Gaur *Arvind Kumar Amit Suhane
Effect of dimple diameter on heat transfer enhancement of double pipe heat exchanger using dimpled twisted tape	International Journal of Scientific & Technology Research, IJSTR, **Scopus Indexed Journal**	Vol.8, Issue 11(**2019**), 75-81.	Sanjay Singh *Arvind Kumar
Effect of twisted tape with nanofluid on performance of double pipe heat exchanger : A comprehensive review	International Journal of Mechanical and Production Engineering Research and Development, IJMPERD, **Scopus Indexed Journal**	Vol.9, Issue 1,(2019),531-540.	Sanjay Singh *Arvind Kumar
Experimental Study of Heat Transfer Enhancement from Dimpled Twisted Tape in Double Pipe Heat Exchanger	International Journal of Mechanical and Production Engineering Research and Development, IJMPERD, **Scopus Indexed Journal**	Vol.10, Issue 1,(2020),499-512	Sanjay Singh *Arvind Kumar
Advances in heat transfer enhancement using twisted tape inserts with and without nanofluid	International Journal of Mechanical and Production Engineering Research and Development, IJMPERD, **Scopus Indexed Journal**	Vol.10, Issue 1,(2020),157-174	Sanjay Singh *Arvind Kumar
Experimental study of heat transfer and friction factor in a double pipe heat exchanger using twisted tape with dimple inserts	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects **SCIE**	https://doi.org/10.1080/15567036.2021.1927248	Sanjay Singh *Arvind Kumar
A review on thermal conductivity of ethylene glycol/water based nanofluid	PalArch's Journal of Archaeology of Egypt/Egyptology **Scopus Indexed Journal**	Volume 18, Issue No. 04 Jan. 2021	Bhrant Kumar Dandoutiya *Arvind Kumar
Comparison of mathematical models to estimate the thermal conductivity of titanium oxide-water based nanofluid - A review	Thermal Science **SCIE**	Thermal Science 2022 Volume 26, Issue 1 Part B, Pages: 579-591	Bhrant Kumar Dandoutiya *Arvind Kumar
CFD analysis for the performance improvement of a double pipe heat exchanger with twisted tape having triangular cut	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects **SCIE**	https://doi.org/10.1080/15567036.2021.1946215 pp.1-19	Bhrant Kumar Dandoutiya *Arvind Kumar
W-cut twisted tape's effect on the thermal performance of a double pipe heat exchanger: A numerical study	Case Studies in Thermal Engineering **SCIE**	2022 Jun 1;34:102031	Bhrant Kumar Dandoutiya *Arvind Kumar
Experimental analysis of thermal performance factor for double pipe heat exchanger with ZnO–water nanofluid	*Proc. Inst. Mech. Eng. Part E J. Process Mech. Eng.* **SCIE**	p.09544089231175090, 2023	Bhrant Kumar Dandoutiya *Arvind Kumar
Study of thermal performance of double pipe heat exchanger using W-	Energy Sources, Part A: Recovery, Utilization, and	vol. 45, no. 2, pp. 5221–5238, 2023,	Bhrant Kumar Dandoutiya

cut twisted tape	Environmental Effects **SCIE**	doi:10.1080/15567036.2023.2207497	*Arvind Kumar
A Review on Nano Fluids for Solar Collector Application	*SSRN Electron Journal*	1–10, 2019, doi: 10.2139/ssrn.3442589	Bhrant Kumar Dandoutiya *Arvind Kumar
An Updated Review of Heat Transfer Enhancement Techniques in Tube-Type Heat Exchangers	Lecture Notes in Mechanical Engineering. Springer, Singapore. **Scopus**	Volume 1,FMFP 2022 https://doi.org/10.1007/978-981-99-7827-4_6	ManojDiwaker *Arvind Kumar
Impact of cut diameter on thermohydraulic performance of DPHE: an experimental analysis using internet of things (IoT) approach	Heat Mass Transfer **SCIE**	59, 2299–2310 (2023). https://doi.org/10.1007/s00231-023-03418-z	ManojDiwaker *Arvind Kumar
Thermo-hydraulic performance of tube type heat exchanger with semi-circular cut twisted tape insert: A numerical exploration	J. Heat Mass Transf. Res. **SCIE**	vol. 10, pp. 159–170, 2023, doi: 10.22075/jhmtr.2023.30445.1438.	ManojDiwaker *Arvind Kumar
Thermohydraulic performance of DPHE affected by triangular and semi-circular cut size on insert: IoT-based experimentation	Case Stud. Therm. Eng. **SCIE**	Vol. 43, no. November 2022, p. 102796, 2023, doi: 10.1016/j.csite.2023.102796	ManojDiwaker *Arvind Kumar
Investigations of the effect of circular perforations and V- cut on SLTT in DPHE: An experimental Analysis using IoT Approach	Proc. of Inst. of Mech. Engrs, Part C J. of Mechanical Engg. Science **SCIE**	https://doi.org/10.1177/0954406224 1271743.	ManojDiwaker *Arvind Kumar
Review on different techniques used to enhance the thermal performance of solar air heater	Int. J. Heat Mass Transf. **SCIE**	vol. 220, no. November 2023, p. 124979, 2024, doi:10.1016/j.ijheatmasstransfer.2023.124979.	Brajesh K Ahirwar *Arvind Kumar
Effect of wire coil inserts on heat transfer enhancement and fluid flow characteristics of a double-pipe heat exchanger	J Therm Anal Calorim **SCIE**	**149**, 3027–3042 (2024). https://doi.org/10.1007/s10973-024-12889-z	Brajesh K Ahirwar *Arvind Kumar
Experimental investigation for heat transfer performance of CuO-water nanofluid in a double pipe heat exchanger	J Therm Anal Calorim **SCIE**	**149**, 4133–4151 (2024). https://doi.org/10.1007/s10973-024-12947-6	Brajesh K Ahirwar *Arvind Kumar
Experimental study of thermal performance factor for double-pipe	J Therm Anal Calorim **SCIE**	**149**, 8345–8364 (2024).	Brajesh K Ahirwar

heat exchanger using ZnO–water nanofluid		https://doi.org/10.1007/s10973-024-13118-3	*Arvind Kumar
Numerical study of fluid flow and heat transfer in a circular tube with Trapezoidal-cut twisted tape inserts".	J Therm Anal Calorim **SCIE**	(2024). https://doi.org/10.1007/s10973-024-13389-w	S Chourasia *Arvind Kumar Brajesh K Ahirwar
Experimental investigation of heat transfer enhancement through free single jet impingement using TiO_2-water nanofluid	J Therm Anal Calorim (2024) **SCIE**	(2024). https://doi.org/10.1007/s10973-024-13390-3	S.K Evne Brajesh K Ahirwar *Arvind Kumar
An In-Depth Numerical and Experimental Analysis of Wire Coil Inserts: Enhancing Thermal Performance and Fluid Flow characteristics in Double Pipe Heat Exchangers	J Therm Anal Calorim (2024) **SCIE**	Volume 149, pages 14057–14081, (2024) https://doi.org/10.1007/s10973-024-13622-6	Brajesh K Ahirwar *Arvind Kumar
Comparative Analysis of CuO-Water and ZnO-Water Nanofluids in the Turbulent Regime for Enhanced Performance in Double Pipe Heat Exchanger	*J Therm Anal Calorim* (2024) **SCIE**	Volume 149, pages 14213–14240, (2024) https://doi.org/10.1007/s10973-024-13623-5	Brajesh K Ahirwar *Arvind Kumar
Enhancing Thermal Performance: A Sophisticated Analysis of CuO-Water Nanofluids and Twisted Tape Inserts in Double Pipe Heat Exchangers-A Numerical Study	*J Therm Anal Calorim* (2024) **SCIE**	Volume 149, pages 15323–15337, (2024) https://doi.org/10.1007/s10973-024-13860-8 4)	Brajesh K Ahirwar *Arvind Kumar
Enhancing Heat Transfer in Tubular Heat Exchangers: A critical Review on Application of Twisted Tapes, Wire Coil Inserts, and Their Synergistic Effects with Nanofluids	Journal of Renewable and Sustainable Energy Reviews (2024) **SCIE**	Volume 224, Dec2025, 116035 https://doi.org/10.1016/j.rser.2025.116035	Brajesh K Ahirwar *Arvind Kumar
An in-depth critical review of different carbon capture techniques: Assessing their effectiveness and role in reducing climate change emissions	Energy Conversion and Management(2025) SCIE	323, Part A, 1Jan 2025, 119244 https://doi.org/10.1016/j.enconman.2024.119244	Ankit Nema, Arvind Kumar * and Vilas Warudkar

- **International & National Conferences**

Title of Paper	Detail of Conference	Volume, Page Number & Year	*Authors
A Review on Nanofluids for Solar Thermal Energy Storage and Solar Still	MMPM -2021 Conference on Mechanical Engineering and Managerial Application for Productivity,	pp. 207-219. MMPM, 2021	Brajesh K Ahirwar *Arvind Kumar

Numerical Study of Performance Evaluation Index for Tubular Heat Exchanger Using Trapezoidal Cut Twisted Tape Inserts	Proceedings of the 28thNational and 6th International ISHMT-ASTFE Heat and Mass Transfer Conference Dec. 9-12, 2025, IIT Jodhpur Rajasthan, India	Accepted IHMTC2025-335	Brajesh K Ahirwar *Arvind Kumar
A Numerical study of BeO-CuO hybrid NF with twisted tape on tubular heat exchanger to determine heat transfer performance	International Conference on New Product Development and Smart Manufacturing (NPDSM 2024), MANIT	Accepted	Brajesh K Ahirwar *Arvind Kumar
Enhancing heat transfer: A Numerical study of CuO-water Nanofluid in a tubular heat exchanger with twisted tape inserts	Proceedings of the 12th International and 52nd National Conference on Fluid Mechanics and Fluid Power (FMFP) December 19-21, 2025, Nirma University, Ahmedabad, India.	Accepted FMFP2025–058	Brajesh K Ahirwar *Arvind Kumar
Experimental Investigation of the Thermo-Hydraulic Performance of a Double Pipe Heat Exchanger Using CeO_2–Water Nanofluid and Artificial Neural Network Modeling	Proceedings of the 28thNational and 6th International ISHMT-ASTFE Heat and Mass Transfer Conference Dec. 9-12, 2025, IIT Jodhpur, Rajasthan, India	Accepted IHMTC2025-33	ManojDiwaker *Arvind Kumar
A Comprehensive Analysis of Characterization Techniques to Gain an Understanding of Copper Oxide Nanoparticle Morphology	International Conference on Advanced Materials and Manufacturing Technologies (ICAMT-2024), MANIT	Accepted	Brajesh K Ahirwar *Arvind Kumar
Comparative study of Nano-enhanced phase change materials for thermal energy storage: A Review	Proceedings of the International Conference on Advancement in Energy, Urja Sangam 2023. MNNIT Prayagraj India, 18-20 December 2023	Paper ID 215 pp:39	Neelam Dubey *Arvind Kumar
An Updated Review of Heat Transfer Enhancement Techniques in Tube Type Heat Exchangers	Proceedings of the 9th International and 49th National Conference on Fluid Mechanics and Fluid Power, (FMFP2022),14-16 Dec 2022	pp: 1-9	ManojDiwaker *Arvind Kumar
Review on HTE using TT in DPHE	Advances in Mechanical Engineering and Management, Feb 2023	Chapter14,179-194	Bhrant Kumar Dandoutiya *Arvind Kumar
A Review on Nanofluids for Solar Thermal Energy Storage and Solar Still	Advances in Mechanical Engineering and Management, Feb 2023	Chapter16,207-219	Brajesh K Ahirwar *Arvind Kumar
Experimental analysis of ETSC with water and CeO_2Nanofluid	Advances in Mechanical Engineering and Management, Feb 2023	Chapter18,240-255	A Martin Babu *Arvind Kumar
Single-Phase Heat Transfer Enhancement in Tube Type Heat Exchangers: A Review	International Conferences on Advances in Mechanical Engineering ICAME2022	24th-26th March 2022 **MANIT BHOPAL**	ManojDiwaker *Arvind Kumar
Heat transfer augmentation in heat exchangers and CFD modeling of	International Conference in Recent Advancement in	19-20th March 2021,**MANIT**	ManojDiwaker *Arvind Kumar

counter flow heat exchangers	Mechanical and Industrial Engineering (ICRAMIE 2021)	**BHOPAL**	
Numerical Study of Heat Transfer and Friction Factor in Double Pipe Heat Exchanger Using Twisted Tape with Dimple Inserts	Proceedings of the 25th **National** and 3rd **International ISHMT-ASTFE**, Heat and MassTransfer Conference **(IHMTC-2019)IIT Roorkee**	Dec. 28-31**, 2019, IIT Roorkee,**	Sanjay Singh *Arvind Kumar
A Review on Nano Fluids for Solar Collector Applications	International Conference on Advances in Power Generation From Renewable Energy Sources **(APGRES 2019) GEC Banswara (Raj.)**	Feb 11-12, 2019.**GEC Banswara (Raj.)**	Bhrant K Dandoutiya *Arvind Kumar
A review of research work on the application of CFD for optimization of air conditioning equipment	International Conference on Global Scenario in Environment and Energy(**ICGSE^2**) MANIT Bhopal	14-16th March 2013 101-105	Shankar Kumar S P S Rajput *Arvind Kumar
A review of experimental study of heat transfer enhancement in heat exchangers	International Conference on Global Scenario in Environment and Energy(**ICGSE^2**) MANIT Bhopal	14-16th March 2013 202-209	Pankaj Dubey *Arvind Kumar R.M.Sarviya LokeshBajpai
Thermal performance of packed bed solar air heater	International Conference on Energy Efficient Technologies for Sustainability, Nagercoil **Kanyakumari**	10-12th April 2013	Prashant Tiwari *Arvind Kumar R M. Sarviya
Review of Thermal Performance In Heat Pipes	International Conference on Mechanical Engineering: Emerging Trends for Sustainability**(ICMEETS)**, MANIT, Bhopal	29- 31th Jan 2014 1157-1165	RaghavendraBaingne *Arvind Kumar
Steady State Heat Transfer Coefficient by Using Discrete W-Shaped Roughness on Absorber Plate of Solar Air Collector	International conference on Recent Advances in Heat Transfer (ICRAHT)**KITS, Coimbatore**	Sept.2006	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Enhancement of Heat Transfer Ratio in a Solar Air Duct with Discrete W-Shaped Roughened Absorber Plate	International conference on Recent Trends in Mechanical Engineering (ICRTME)**UEC, Ujjain**	4-6th Oct 2007	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Investigation of Thermal Efficiency in Solar Air Collector	International conference on Advances in Energy Research(ICAER), **IITBombay**	12-14th Dec.2007	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Sustainable Development through Efficient Solar Air Heaters	International Congress on Environmental Research **(ICER)**	28-30th Dec.2007	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
A Review paper of solar Absorption and Adsorption system	National Conference on Frontiers in Mechanical Engg.(FIME 2013) **MANIT** Bhopal	29-31th Aug 2013 322-325	Shankar Kumar S P S Rajput *Arvind Kumar

Review of passive heat transfer enhancement techniques in heat exchangers	National Conference on Frontiers in Mechanical Engg.(FIME 2013) **MANIT** Bhopal	29-31th Aug 2013 100-104	Bhoopendra Verma *Arvind Kumar
Heat Transfer Enhancement in Channel of Solar Air Collector by Using Discrete W-Shaped Artificial Roughened Absorber	ASME-ISHMT Conference JNTU Hyderabad	3-5th Jan 2008.	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Augmentation ofHeat Transfer in Solar Air Collector Using Artificial Roughness : A Review	National Conference on Applied Engineering and Sciences **SIRT** Bhopal	24thOct 2008.	*Arvind Kumar J.L.Bhagoria R.M.Sarviya
Study of heat transfer using rotating inserts in circular tube heat exchanger	Advancements and Current Trends in Industrial Mechanical and Production Engineering	Chapter16 Nov 2014 122-130	Bhoopendra Verma *Arvind Kumar

Patents (Granted)

- Heat exchanger with helical coil inserts dated 04/03/2025, Patent Office, Govt. of India
- Heat exchanger with W-cut twisted tape inserts dated 05/03/2025, Patent Office, Govt. of India

Administrative Work

- Overall In charge HE Lab (2020- Till date)
- Lab I/c Heat Engines Lab (2019- Till date)
- Lab I/c Turbo machines (2019- 2024)
- M. Tech Coordinator - Thermal (2020-21, 2025- Till date)
- Faculty I/C Exam (2018-2022)

Other information

- Examiner for Evaluation of PhD Thesis at SRK , RKDF University
- Delivered Expert lecture at BCE Bhagalpur, RKDF university, SisTec various other institutes
- Examiner for various institutes viz. Institution of Engineers (India), Central Agricultural University, Imphal, BPUT Rourkela, UEC Ujjain, GEC Jabalpur, SATI Vidisha , SGSITS Indore, ESB Bhopal
- Organized International Conference on Industrial Mechanical and Production engineering advancement and Current Trends ICIMPACT 2014
- Coordinator 2-week ISTE Workshop on Engineering Thermodynamics 2012
- Acted as Reviewer for articles of reputed International Journals (viz. Journal of Thermal Analysis and Calorimetry , International Communications in Heat & Mass Transfer, Applied Thermal Engineering (Elsevier) , European Journals, WASJ, Journal of Renewable Energy and Environment , Scientific Reports etc) and International Conferences (ISHMT 2025, Parul Univ. Vadodara & Others)
- Acted as Editor Proceedings, Chairing/Reporter of Technical session(s) at International Conferences