Name: Dr. Hreetabh Kishore
Present Title: Instructor in the Department of Manufacturing Engineering and Technology, Tennessee Technological University (TTU), Cookeville, TN, USA (Contract Basis)
Present Address: **Office:** 111A, Lewis Hall, TTU
Home: 39 E 16th St, Apartment-1, Cookeville, TN
Mob. No: +1 931-529-0741
Email: hkishore@tntech.edu

Date of Birth: February 15th, 1994

Educational Qualifications (all national exam results from secondary school):

Sr. No	EXAMS PASSED / Previous Degree	UNIVERSITY / INSTITUTION / BOARD	YEAR OF PASSING	MAIN DOMAIN	SUBJECT OF SPECIALIZATION	DIV. / CLASS & % OF MARKS
1	Matriculation	CBSE	2008	All compulsory subjects	All compulsory subjects (English medium)	71
2	Certificate	SLIET	2010	Mechanical	Foundry and Forging	83.03
3	Diploma	SLIET	2012	Mechanical	Foundry Technology	87.16
4.	B.E.	SLIET	2015	Mechanical	Welding Technology	77.13
5.	M.Tech.	SLIET	2017	Mechanical	Welding & Fabrication	85.50
6.	Ph.D.	IIT ROPAR	2023	Mechanical	Manufacturing	67.86

Details about Ph.D.:

Ph.D. registered University:	**Indian Institute of Technology Ropar**
Name of institute/lab of Ph.D. work	**Micro Manufacturing Lab/ Advanced Manufacturing Technology Lab**
Present Position:	**Instructor in the Department of Mechanical Engineering and Technology (TTU)**
Name of Ph.D. supervisors:	**Dr. Chandrakant Kumar Nirala & Dr. Anupam Agrawal**
Title of Ph.D. work:	**Experimental and Numerical Investigation of Reverse-Micro-EDM Fabricated Arrayed Micro Protrusions**
Research Area:	**Non-conventional Precision Micromachining, Metamaterials, Metal additive manufacturing, Machine learning in 3D printing, Material Deformation, Biomedical fabrication, Computational Fluid Dynamics**
Ph.D. starting month and year	**August-2017**
Ph.D. ending (month/year)	**December-2022**

Research Interests:

- Additive Manufacturing
- Material processing engineering
- Modeling and simulation of modern manufacturing processes (non-conventional micromachining)
- Reliability study and optimization of process parameters

- Heat transfer analysis, CFD, Fluid Dynamics
- Thermal Management in Electronic packaging

Work Style:

- Willing to perform basic tasks and move on to solve complex problems
- Able to learn new knowledge and adapt to new environments quickly
- Strong independent work style and excellent teamwork skills
- Well-organized and passionate

Graduate Aptitude Test in Engineering-(GATE) Qualified: HREETABH KISHORE, Registration Number: ME88039S3323, Gate Score- 484, Marks 45.42, (2015)

Masters' Dissertation: DEVELOPMENT OF PREDICTION MODEL FOR TEMPERATURE DISTRIBUTION AND MICROHARDNESS OF SS316 WELDMENT USING UNCOUPLED FEM AND ANN APPROACH (Dated: MAY, 2017) PGWLF/SL/15/2564.

Professional Training:

SL. No	Organization	Period		Details of Training/ Project undertaken
		From	To	
1	Bharat Wagon Engineering Limited (Muzaffarpur, Bihar)	June 2009 & June 2011	July 2010 & July 2011	To study the overall manufacturing processes used in the production of different Wagons supplied to Indian Railways to carry goods.
2	Bharat Heavy Electrical Limited (Haridwar, Uttarakhand)	June 2013	July 2013	Effect of heat input on MS plate using cladding electrode E-316L and their testings (Impact testing, wear test, dilution Test, DPT, Hardness Test etc.)
3	Birla Cellulosic (Kharach,Gujarat)- Aditya Birla Group	July 2013	August 2013	Pipe welding and A-Z manufacturing of cotton balls for Grasim India using natural and artificial pulp.
4	IIT Ropar (Rupnagar, Punjab)	June 2016	July 2016	Studies on Single Point Incremental forming process: Experimental and Simulation, Welding simulation using ABAQUS and ANSYS commercial software, Python Scripting.

Professional activities/achievements:

i. Reviewer of Journal of Thermal Science and Engineering Applications. (**ASME)**
ii. Reviewer of Journal of **Adhesion Science and Technology. (Taylor and Francis)**
iii. Reviewer of Journal of **International Journal on Interactive Design and Manufacturing. (Springer)**
iv. Reviewer of Journal of **Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering. (Sage Journals)**
v. Reviewer of Journal of **High Temperature Materials and Processes. (De Gruyter)**
vi. Reviewer of Journal of **Case Study in Construction Materials. (Elsevier)**
vii. Worked as Student Coordinator for **ISME-2022 conference**. (Held between 19-21th May at IIT Ropar).
viii. Worked as Student Coordinator for **AFTMME-2021 conference**. (Held between 9-11th December at IIT Ropar).
ix. Worked as Student Coordinator for **15th IEEE ICIIS-2020 conference**. (Held between 27-28th November at IIT Ropar).
x. Editor of quarterly "**Sangam Patrika**" at IIT Ropar 2019-2023.

xi. Got Student Award for Outstanding Research Presentation in **WCMNM-2021**.
xii. Won various **National and Institute level** prizes at IIT Ropar.
xiii. Worked as **Departmental Representative** (PhD) at IIT Ropar
xiv. Organized **METRIX-3.0** (Inter IIT Research Idea Exchange Workshop in the Department of Mechanical Engineering
at IIT Ropar.
xv. Awarded **GOLD MEDAL** (**Academics**) in Diploma in Foundry Technology.
xvi. Awarded First Consolation Prize in Hindi Song Competition on the occasion of **75th Independence Day** at IIT Ropar,
Organized by Hindi Cell.
xvii. Awarded Second Consolation Prize in Hindi Quiz Competition on the occasion of **Hindi Pakhwara** at IIT Ropar,
Organized by Hindi Cell from 14th -28th September 2020.
xviii. Awarded **First Prize** (**METRIX-3.0)** Research Talk Presentation. (21st-22nd October 2021)
xix. Awarded **BRONZE MEDAL (Academics)** in MTech. in Welding and Fabrication.
xx. **Best Thesis Award** in the Department of Mechanical Engineering in M.Tech. at SLIET, Longowal.
xxi. Coordinated various departmental **STTP, Workshops etc.** and **Science Day** at SLIET, Longowal.
xxii. Member of **SLIET Mechanical Engineering Society.**
xxiii. Nominated for prestigious **Newton-Bhabha Fund PhD Placement Programme.**
xxiv. Actively participated in various sports activities at college and inter school level.
xxv. Won Second Prize in Paper Presentation **"Go-Green"** in Techfest 2013 at SLIET Longowal.
xxvi. **3rd Prize** in working Model of welding jobs Fixtures in Techfest 2014 at SLIET Longowal.
xxvii. Worked as chief coordinator of **RAJBHASHA HINDI VIKAS SAMITI (2012-2014).**
xxviii. Worked as Student Chairman **Indian Society for Technical Education committee**.
xxix. **Overall Student Coordinator** in Techfest 2015 at SLIET Longowal.
xxx. Worked as a secretary (Motivation Committee) during **SLIET TECHFEST-2013.**
xxxi. Worked as chief editor of Hindi Patrika "**PRAUDYOGIKI BHARTEE"-2014 (SLIET, Longowal)**.
xxxii. Worked as Executive member of **NATIONAL SERVICE SCHEME** Committee **(SLIET, Longowal)**.

Expertise:

- Optimization, CNC coding, MATLAB programming, LABVIEW, and simulation software (viz. ANSYS and ABAQUS, SOLIDWORKS).
- Exhaustive hand-on over Hybrid µEDM DT110i (Mikrotools Pte Ltd., Singapore) machine equipped with ND-YAG laser micromachining head.
- Hands-on experience on 3D metal printing (EoS M290, EOS GmbH) installed in the micromachining center in the Advanced Manufacturing Technology Lab at IIT Ropar. Inventive hand in product designing and development.
- Plentiful hands-on over Scanning Electron Microscopy, Atomic Force Microscopy, and other characterization tools.
- Highly self-motivated Ph.D. holder with demonstrated research expertise in growing semiconductor microstructures.
- Strong interpersonal skills.
- Computer skills: Windows; LaTeX; C/C++, etc.

Teaching Experience:

- UG courses undertaken:

  - MET-3303- CAD for Technology, Jan-May 2023 at Tennessee Tech University, Tennessee, USA
  - MET-2400- Statics/Strength of Materials, Jan-May 2023 at Tennessee Tech University, Tennessee, USA
  - MET-3303- CAD for Technology, Aug-Dec 2023 at Tennessee Tech University, Tennessee, USA

- MET-3100- Applied Physical Metallurgy, Aug-Dec 2023 at Tennessee Tech University, Tennessee, USA

- Teaching Assistant (Graduate Level)

  - Manufacturing Technology-I Lab, Jan-May 2020,
  - Manufacturing Technology-II, Aug-Dec 2018, Aug-Dec 2020
  - Workshop Practice, Aug-Dec 2017, Aug-Dec 2019
  - Micro manufacturing, Jan-May-2021, Aug-Dec 2021
  - Engineering Drawing, Jan-May 2018
  - Machine Drawing, Jan- Jan-May 2019

Major Courses:

- Advanced material characterization techniques
- Micro manufacturing and 3D printing
- Numerical Methods and Measurement in Mechanical Engineering
- Operation research
- Welding metallurgy and welding processes
- Advanced manufacturing Technology
- Finite element method
- Statics/Strength of Materials
- CAD for Technology
- Applied Physical Metallurgy

Project(s):

Title: "Development of cost-effective technology for generating high precision micro-structures by enhancing micro-EDM capabilities" submitted Project Proposal under Advanced Manufacturing Technologies (AMT) Program, SERB-DST, INDIA (Assisted PIs in drafting proposal).

Patent work:

Indian Patent Application No: 202211036538
Date of filing: 25/06/2022
Title: 'A dielectric flushing system for Reverse-micro-electric discharge machining and method of flushing thereof'
Applicant: Indian Institute of Technology Ropar
Inventors: Hreetabh Kishore, Chandrakant K Nirala, & Anupam Agrawal
Status: Under review

International conference attended (In-person mode):

i. Attended 22nd International Conference on Advances in Materials and Processing Technology (AMPT- 2019), Oct. 20-24, 2019, Taipei, Taiwan. (Funded by IIT Ropar).

ii. Attended 55th CIRP Conference on Manufacturing Systems-2022. (Held in Switzerland on 29th June- 1st July, 2022). (Funded by SERB under International Travel Support Scheme, Department of Science and Technology, Government of India).

iii. Attended 24th International Conference on Wear of Materials. (Held in Banff, Alberta, Canada, 16-20 April 2023). (Funded partially by Tennessee Technological University, Cookeville, Tennessee, USA-38501).

List of Publications:

i. P. Sinha, **H. Kishore.** Mapping the research trends on the post-processing assessment of additively manufactured structures during (2013-2023): A scientometric analysis, *Scientometrics*, Springer. 2023. Manuscript ID: SCIM-D-23-01287 (Submitted).

ii. A. Singh, S. Ahmed, **H. Kishore**, C. K. Nirala, and H. Singh, "Fabrication of micro-features on tungsten carbide made FSW/P tool shoulder through R-µEDM process - A feasibility study", *J. of Manuf Proc*, Elsevier. 2023. (Reviewer comment Submitted).

iii. **H. Kishore**, M. Pal., C.K. Nirala, A. Agrawal, 2021, "Thermal Design based Dimensional Optimization and Fabrication Feasibility of Unconventional Micro Pin-fin Heat exchangers", *Int. J. of Preci. Engg. Manuf.*, Springer, 2023. (Accepted on 26th June 2023). Manuscript ID: **JPEM-D-23-00227**.

iv. P. Sinha, K. S. Brar, **H. Kishore,** A. Panja. "Perceptions of library professionals towards application of Internet of Things in libraries: study of Indian Institute of Management in India", Journal of Global Knowledge, Memory and Communication. Manuscript ID: GKMC-05-2023-0178.

v. K. S. Sandhu, H. Singh, G. Singh, **H. Kishore**, "Performance evaluation of additive TiO2, MWCNT and GNP reinforced particles on Mg AZ31 based matrix composites by Friction Stir Processing", *J. of Adh. Sci. Tchnol.* Taylor and Francis. 2023. https://doi.org/10.1080/01694243.2023.2241252.

vi. **H. Kishore**, C.K. Nirala, A. Agrawal, 2023, "Thermal Performance Index based Characterization and Experimental Validation for Heat Dissipation by Unconventional Arrayed Micro Pin-fins", *J. of Thermal Sci. Engg. Progres.*, Elsevier, 2023. 45; 102015 (1-13). https://doi.org/10.1016/j.tsep.2023.102015.

vii. **H. Kishore**, C.K. Nirala, A. Agrawal, "Exploring AZ31B Magnesium Alloy for Innovative Micro Products by Reverse µEDM", *Mat. Letters*, Elsevier. 328, 2022. 133109 (1-4) https://doi.org/10.1016/j.matlet.2022.133109.

viii. J. Airao, **H. Kishore**, and C. K. Nirala, "Measurement and analysis of tool wear and surface quality in micro turning of SLM Ti6Al4V and wrought Ti6Al4V", *J. of Measurement*, Elsevier (206); 2023. 112281. https://doi.org/10.1016/j.measurement.2022.112281.

ix. J. Airao, **H. Kishore**, and C. K. Nirala, "Comparative analysis of tool wear in micro milling of wrought and selective laser melted Ti6al4V", *J. of Wear*, Elsevier (523); 2023. 204788. https://doi.org/10.1016/j.wear.2023.204788.

x. S. Raza, **H. Kishore**, C. K. Nirala, and K.P. Rajurkar, "Multiphysics Modeling and High-Speed Imaging based Validation of Discharge Plasma in Micro-EDM", *CIRP J. Manuf. Sci. and Technol.* (43)*;* (Elsevier, 2023). 15-29. https://doi.org/10.1016/j.cirpj.2023.02.006.

xi. H**. Kishore**, C.K. Nirala, A. Agrawal, "Laser Micromachining in Fabrication of Reverse-µEDM Tools for Producing Arrayed Protrusions", *J. of Micromachines* (Basel). MDPI. 2022;13(2):306. https://doi:10.3390/mi13020306.

xii. H**. Kishore**, C.K. Nirala, A. Agrawal, Basil Kuriachen, "Assessment of process parameters and performance enhancement through a novel suction flushing technology in RµEDM", *J. of Mater. and Manuf. Process*. Taylor and Francis. 2021; 36(13): 1–13, https://doi.org/10.1080/10426914.2021.1948051.

xiii. **H. Kishore**, R. Nadda, C.K. Nirala, A. Agrawal, "Modelling and Simulation Based Surface Characterization of Reverse-µEDM Fabricated Micro Pin-fins", *J. of Procedia CIRP*, vol. 81, pp. 1230-1235, (Elsevier, 2019), https://doi.org/10.1016/j.procir.2019.03.299.

xiv. **H. Kishore**, C.K. Nirala, A. Agrawal, "Feasibility Demonstration of µEDM for Fabrication of Arrayed Micro Pin-fins of Complex Cross-sections", *J. of Manuf. Letters*, vol.23, pp.14-18, (Elsevier, 2020). https://doi.org/10.1016/j.mfglet.2019.11.005.

xv. J. Airao, **H. Kishore**, and C. K. Nirala, "Tool Wear Behavior in μ-Turning of Nimonic 90 Under Vegetable Oil-Based Cutting Fluid." ASME. *J. Micro & Nano-Manuf.* December 2021; 9(4): 041003. https://doi.org/10.1115/1.4053315.

xvi. **H. Kishore**, R.K. Saxena, "Experimental and Numerical Method to Predict the Micro-hardness of SS316", *International Journal of Engineering Technology Science and Research (IJETSR)*, ISSN 2394 – 3386 Volume 4, Issue 5, 2017, pp.211-224, ISBN: 978-81-934083-0-8.

List of Conference (Oral/Poster) Presentations:

i. **Kishore, H.**, Nirala, C. K., Agrawal, A. Aerodynamic Performance of Arrayed Piranha Micro Pin-fin Heat Sinks: Thermal characterization and Fabrication feasibility Demonstration. 2nd International Conference on Futuristic Advancements in Materials, Manufacturing and Thermal Sciences (ICFAMMT 2024)), To be held on Jan. 19-21st, 2024, IITRAM, Ahmedabad, Gujarat.

ii. J. Airao, **H. Kishore**, and C. K. Nirala, "Comparative analysis of tool wear in micro milling of wrought and selective laser melted Ti6al4V" 24th Conference on wear of materials" (published in Wear Journal), 16-20th April, 2023.

iii. Sohaib Raza, **Hreetabh Kishore**, Chandrakant Kumar Nirala, "Simulation of crater formation during µEDM using the ALE method" 5th World congress on micro and nano manufacturing, Proceedings *of WCMNM-22*, Paper ID-56, KU LEUVEN, Belgium, (19th-22th September, 2022)

iv. Sohaib Raza, **Hreetabh Kishore**, Chandrakant Kumar Nirala, "Simulation and Experimental Study of Plasma Channel Formation in Micro EDM for Magnesium AZ31B alloy", 10th CIRP Global Web Conference – Material Aspects of Manufacturing Processes-2022. Chalmers University of Technology, Sweden. (25th-27th October, 2022)

v. Shuja Ahmed, Arjun Singh, **Hreetabh Kishore**, Damish Qamar, Chandrakant Kumar Nirala, Harpreet Singh "Fabrication of shoulder surface features on tungsten carbide made FSP tool through EDM process- A feasibility study", 9th International Conference on *"Advancements and Futuristic Trends in Mechanical and Materials Engineering" (AFTMME-2021),* IIT Ropar, Rupnagar, India. 9th-11th December, 2021)

vi. Harish K Nirala, **Hreetabh Kishore**, Anupam Agrawal, "Effect of Nd- YAG LBµM process parameters on the surface characterization of fabricated micro components", 20th ISME (Advancement in Mechanical Engineering) conference held at IIT Ropar, 19th -21st May, 2022. (Presenter: Hreetabh Kishore and Dr. Harish K Nirala)

vii. Mainak Pal, **Hreetabh Kishore**, Anupam Agrawal, Chandrakant K Nirala, "Fabrication of Precise Hemispherical End Tool for Micro Incremental Sheet Forming using Reverse-µEDM", *55th CIRP Conference on Manufacturing Systems-2022. J. of Procedia CIRP*, Vol. 107, pp. 1600-1605 (Elsevier, 2022), https://doi.org/10.1016/j.procir.2022.06.001.

viii. **Hreetabh Kishore**, Vikrant Sharma, Jay Airao, Chandrakant K Nirala, Anupam Agrawal, 2021, "Introduction of a New Suction based Dielectric Flushing in Reverse-µEDM", *Proceedings of WCMNM-21*, Paper ID-35, IIT Bombay (Presented online). (Awarded student Award with fee exemption)

ix. **Hreetabh Kishore**, Mainak Banerjee, Saurabh Rai, Rakesh Kumar, Anupam Agrawal, 2020, **"**Experimental and Numerical Investigation on Micro Friction Stir Welding of Dissimilar Metal Joints", *Proceedings of the ASME 2020 15th International Manufacturing Science and Engineering Conference, MSEC-2020. Paper ID- MSEC2020-8525*, MSEC2020-8525, V002T06A015; 8 pages, https://doi.org/10.1115/MSEC2020-8525.

x. **Hreetabh Kishore**, C.K. Nirala, A. Agrawal, 2019, "Characterization of LBM Fabricated Tool-plate for RµEDM", *7th International conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering (AFTMME 2019),* IIT Ropar, 5-7th December 2019.

xi. **Hreetabh Kishore**, Chandrakant Kumar Nirala, Anupam Agrawal, "Unconventional Shaped Micro Pin-fins for Electronic Cooling: A New Fabrication Approach," *22nd International Conference on Advances in Materials and Processing Technology (AMPT- 2019)*, Oct. 20-24, 2019, Taipei, Taiwan. (Presenter: Hreetabh Kishore)

xii. Mainak Pal, Peeyush Mahajan, Nihal Athikkai, Saurabh Rai, **Hreetabh Kishore**, Rakesh Kumar, Anupam Agrawal, "Development of GUI and Comparison of Tool path Strategies for Incremental Forming of Polycarbonate Sheet." (Submitted at *COPEN-2019,* IIT, Indore, December 12-14, 2019).

xiii. **Hreetabh**, Nirala C.K., Agrawal A. (2019) A New Approach for Fabrication of Complex-Shaped Arrayed Micro Electrodes. In: Shunmugam M., Kanthababu M. (eds) *Advances in Micro and Nano Manufacturing and Surface Engineering. Lecture Notes on Multidisciplinary Industrial Engineering. Springer, Singapore*. https://doi.org/10.1007/978-981-32-9425-7_3.

xiv. Rai S., **Kishore H.**, Kumar Nirala H., Agrawal A. (2020) Finite Element Analysis of Sheet Thickness and Force Variation in AA6063 During Single Point Incremental Forming. In: Shunmugam M., Kanthababu M. (eds) *Advances in Simulation, Product Design and Development. Lecture Notes on Multidisciplinary Industrial Engineering. Springer, Singapore*. https://doi.org/10.1007/978-981-32-9487-5_13

xv. **Hreetabh Kishore**, Shoaib Raza, C.K. Nirala, A. Agrawal, "Poster-I Hybrid µEDM-LASER Technology for Fabrication of Complex Shaped Arrayed Micro-structures" Poster II- "Process Development in µEDM using Hybrid Ultrasonic Vibration and Suction Technology" Participated and presented Poster at *IESS-2019*, Chennai Trade Center, Chennai, Tamilnadu, 14-16 March, 2019.

xvi. "A New Technology for Fabrication of Arrayed Micro-pin-fins" presented Poster by (Dr. Chandrakant K Nirala) on March 17th 2018 at *Titan Technology Tune-In, Hosur Titan watches factory*. - Address, No.3 SIPCOT Industrial Complex, Hosur, Banglore city, Registration ID- 20143818.

xvii. **Hreetabh Kishore**, C. K. Nirala, A. Agrawal, "Development of a New Technology for Fabrication of Complex Shaped Arrayed Micro-pin-fins" submitted and presented in *Research Conclave at IIT Ropar* on April 23rd 2018.

xviii. **H. Kishore**, R.K. Saxena, "Experimental and Numerical Method to Predict the Micro-hardness of SS316", International Conference on New Frontiers of Engineering, Science, Management and Humanities (ICNFESMH-2017), NITTTR, Chandigarh, Paper Id-NITTTR-936.

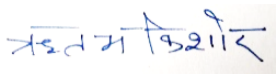
Social and Professional media links:

Google Scholar- https://scholar.google.com/citations?user=0L7UbGwAAAAJ&hl=en&oi=ao
Research gate- https://www.researchgate.net/profile/Hreetabh-Shrivastava
LinkedIn – https://www.linkedin.com/in/hreetabh-kishore-shrivastava-b3753893/
Facebook- https://www.facebook.com/hreetabh.kishore
Twitter – https://twitter.com/Hreetabh_IITRPR
Orcid iD- https://orcid.org/0000-0002-7353-8800
Web of Science ResearcheriD: https://www.webofscience.com/wos/author/record/IUM-5811-2023
Scopus iD- https://www.scopus.com/authid/detail.uri?authorId=57209691395

DECLARATION: -

I certify that the presented information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time I am found to have concealed/distorted any material information, my appointment shall be liable to be summarily terminated without notice/compensation.

Place: Cookeville, Tennessee, USA
Date: 08/10/2023



Signature of the candidate