CV of Dr.Kankan Kishore Pathak

Name: Dr. Kankan Kishore Pathak

Designation: Assistant Professor

Address for Communication: (office): Mechanical Engineering Department,
Girijananda Chowdhury University,
Hathkhowapara, Azara,
Guwahati-781017, Assam, India.

Mobile No.: +91 8258968598

WA No: +91 8258968598

Email: kankan_me@gcuniversity.ac.in, kankankishore@gmail.com

Sex: Male

Educational Qualifications: B.E., M.Tech, Ph.D.

Sl. No.	Examination Passed	Year of passing	Board / Council / University	Specialization
1	HSLC/10th Std.	2004	SEBA	Schooling
2	HSSLC/10+ 2 Std.	2006	AHSEC	Science
3	Degree (B.E.)	2011	VTU	Mechanical Engineering
4	Master's Degree (M.Tech)	2014	NERIST	Thermo-Fluid Engineering
6	Ph. D. (in Mechanical Engineering)	2018	NERIST	Computational Fluid Dynamics / Numerical Heat Transfer
8	GATE	2012	Conducted by IIT Delhi	Mechanical Engineering

Languages known: Assamese, Hindi, English (Read, Write & Speak)

Academic Experience (Teaching and Research): 11 years

Courses Taught:

Undergraduate: Fluid Mechanics I, Fluid Mechanics II, Applied Thermodynamics I Applied Thermodynamics II, Turbo machinery, Machine and Assembly Drawing.

Postgraduate: Advanced Thermodynamics, Advanced Fluid Dynamics, Computational Fluid Dynamics.

Ph.D.: Research Methodology (Report Writing)

Research Interest:

Mechanical Engineering-Design and optimization of heat sinks/extended surfaces, numerical heat transfer/computational fluid dynamics, fluid mechanics, thermodynamics, energy and exergy analysis of thermal systems, renewable energy, condensation, etc.

Projects Supervised for students:

For B.Tech:

- Thermal analysis of a steam turbine unit of Namrup thermal power plant, Assam, India. (Completed in 2020) (Conference Paper presented in PRIME 2021,NIT Patna/Published as a Book Chapter (Publisher: CRC Press))
- Thermal analysis of a conventional coal based thermal power plant using Cycle-Tempo.(Completed in 2021)
- Design and fabrication of a model of a multi-purpose agricultural vehicle. (Completed in2022)
- Design, development and performance analysis of a solar dryer for fruit/vegetable chips. (Completed in 2023) (Conference Paper presented in ICRAME 2024, NIT Silchar/Published as a Book Chapter (Publisher: Springer))
- A prototype design of waste segregation bin. (Completed in 2024)

For M.Tech:

- Heat transfer analysis through pipes in a water heater: A simulation and modelingapproach. (Completed/2020)
- 4E Analysis of a Solar Air Heater with an Absorber Plate Modified with SquareObstacles with Air Vents.(Completed/2022)
- Thermal performance analysis of a novel solar dryer suitable for Northeastern region. (Completed/2023)
- Thermal Analysis of Organic Rankine Cycle Using Different Working Fluids for I.C. Engine waste heat recovery. (Completed/2024)

Administrative/Academic Responsibilities

- UGC Coordinator of Girijananda Chowdhury University (GCU), Assam.
- Nodal Officer for Girijananda Chowdhury University's UGC e-samadhan Portal.
- Joint Coordinator, Promotion and Outreach Cell, Girijananda Chowdhury University

(GCU), Assam

- Faculty Coordinator for AICTE-MIC sponsored Innovation, Design and Entrepreneurship (IDE) Bootcamp for School Teachers from 29th to 30th November, 2024 at Girijananda Chowdhury University (GCU), Assam.
- NAAC Criterion Coordinator (Cr.V) and member, NAAC Steering Committee, GCU, Assam.
- Faculty Coordinator, Robotics and Innovation Club, Girijananda Chowdhury University (GCU), Assam.
- Member, Institute Innovation Cell (IIC), GIMT Guwahati(2021-2022), Girijananda Chowdhury University (GCU), Assam (2024)
- Coordinator (GIMT Guwahati) for participation in Atal Ranking of Institutions on Innovation Achievements (ARIIA), a flagship program of the Ministry of Education, Government of India. (2021-2022)
- Member, Institute (GIMT) Magazine Committee.(2019-2022)
- Departmental (ME) Swayam (NPTEL) coordinator.
- Question paper setter to Assam Science and Technological University (ASTU), Assam.
- External Examiner to Diploma Lab Examination held in Indian Institute of Handloom Technology, Guwahati, Assam (Session: 2024-25).
- External Examiner to B.Tech project viva held in Mechanical Engineering Department, Regional Institute of Science and Technology (RIST), Meghalaya.
- Reviewer to the Journal of Mechanical Engineering (JMechE), Published by University Technology, Mara, Malaysia. (Scopus).
- Reviewer to the International Conference on Modern Materials for Engineering and Research. (ICMMER 2022/ Scopus).
- Associated with AICTE Course approval process 2025-26 for Girijananda Chowdhury University, Assam.

Invitee Talk

- Delivered a talk in a webinar "*Convective heat transfer through extended surface*" organized by Mechanical Engineering Department, Vidyavardhaka college of Engineering, Gokulam 3rd stage, Mysuru-570002, Karnataka, India.

- Act as a resource person in the workshop on "*Artificial Intelligence as an Emerging Technology*" conducted by Sonitpur Polytechnic, Dhekiajuli, Assam and Nowgong Polytechnic, Nagaon, Assam, on 3rd and 9th May, 2024 respectively.

Professional Memberships

- **Life member** of the Indian Society for Mechanical Engineers (**ISME**), IIT Delhi, India, Membership number: **L-1167.**
- **Life member** of Indian Society for Technical Education (**ISTE**), India, Membership number: **LM- 117233.**

Publications

Details of International Journals:

- P.P.Borah, **K. K. Pathak**, A. Gupta, S. Roy, B. Das, Experimental study of a solar air heater with modified absorber plate through square obstacles with threaded pin fins, Applied Thermal Engineering, Volume 228, 2023, 120544, https://doi.org/10.1016/j.applthermaleng.2023.120544. .
(I.F.: **6.1**)
- **K.K. Pathak**, A Giri, D Bhuyan, K Roy, A comparative numerical study of estimation of

velocity components in mixed convection through vertical shrouded plate finned channel, ASME J. Thermal Sci. Eng. Appl., 2022. https://doi.org/10.1115/1.4055264.(I.F.:**1.87**)

- K.Roy, B.Das, **K.K.Pathak**, A.Giri, Thermo Hydraullic Analysis of slightly inclined finned channel under natural convection, Journal of Applied Fluid Mechanics, 15, 985-998, 2022.https://doi.org/10.47176/JAFM.15.04.33307. (I.F.: **1.15**)
- **K.K. Pathak**, A. Giri, B. Das, Thermal performance of heat sinks with variable and constant heights: An extended study, International Journal of Heat and Mass Transfer, 146, 118916, 2020.https://doi.org/10.1016/j.ijheatmasstransfer.2019.118916.(I.F.:**5.431**)
- D.Dasgupta, **K.K.Pathak**, A.Giri, A study of enhanced heat and mass transfer from variable height fin array undergoing natural convection, J. Thermal Sci. Eng. Appl., 12(1): 011013, 2020. https://doi.org/10.1115/1.4044426. (I.F.: **1.87**)
- **K. K. Pathak**, A. Giri, P. Lingfa, Computational study of mixed convective heat transfer from a shrouded vertical dual-height plate fin array, Int. J. Thermal Sciences, 145, 105958, 2019. https://doi.org/10.1016/j.ijthermalsci.2019.05.014. (I.F.:**4.9**)
- **K. K. Pathak**, A. Giri, P. Lingfa, A numerical study of natural convective heat transfer from a shrouded vertical variable height non-isothermal fin array, Applied Thermal Engineering, 130, pp.1310–1318,2018. https://doi.org/10.1016/j.applthermaleng.2017.11.120. (I.F.: **6.1**)
- **K.K Pathak**, A. Giri, Comparison between exact thermal boundary condition and harmonic mean conductivity condition at the solid-fluid interface for finite thickness shrouded non-isothermal fin array, Applied Mathematical Modelling, 45, pp. 323-335, 2017. https://doi.org/10.1016/j.apm.2016.12.014. (I.F.:**4.4**)
- A.Giri, **K.K. Pathak**, B. Das, A computational study of mixed convective heat and mass transfer from a shrouded vertical non-isothermal fin array during dehumidification process, Int. J. Heat Mass Transf., 91, pp. 264–281, 2015. https://doi.org/10.1016/j.ijheatmasstransfer.2015.07.079. (I.F.: **5.431**)
- **K. K. Pathak**, A. Giri and P. Lingfa, Evaluation of heat transfer coefficient of a shrouded vertical array of heat sinks (fins): a computational approach, International Journal of Mechanical Engineering and Technology, vol. 8(4), pp.319-326, 2017. (SCOPUS)
- **K. K. Pathak,** A. Giri and P. Lingfa, Computational study on heat transfer from a shrouded upright rectangular fin array: a typical case study. Journal of Chemical and Pharmaceutical Sciences, pp. 46-49 Special Issue, August-2017. https://doi.org/10.30558/jchps.

Details of Book Chapters Published:

- **Pathak, K.K.**, Das, S. (2020). Impact of Bioenergy on Environmental Sustainability. In: Praveen Kumar, R., Bharathiraja, B., Kataki, R., Moholkar, V. (eds) Biomass Valorization to Bioenergy. Energy, Environment, and Sustainability. **Springer**, Singapore. https://doi.org/10.1007/978-981- 15-0410-5_10. (Scopus/WoS)
- Pathak, P., **Pathak**, **K. K.,** Pathak, A. K., Impact of Biofertilizers in Sustainable Growth of Agriculture Sector, In: Islam, S.,Shalla, A.H., Khan, S.A. (eds) Handbook of Biomass Valorisation for Industrial Applications. Publisher: **John Wiley and Scrivener** US. (Scopus & WoS) https://doi.org/10.1002/9781119818816.ch21. (Scopus/WoS)
- Kalita, K., Borah, P.P., **Pathak, K.K**. (2023). A Study of Internet of Things in Smart Grid and Smart Grid Security. In: Das, B., Patgiri, R., Balas, V.E. (eds) Advances in Smart Energy Systems. Smart Innovation, Systems and Technologies, vol 301. **Springer**, Singapore. https://doi.org/10.1007/978-981-19-2412-5_2. (Scopus/WoS)

- Nag, S., Borah, P.P., **Pathak, K.K.** (2024). 3D Printing: Fundamentals, Applications and Future Prospects, In: Thanigaivelan, R., Krishnan, P.K., M., Kamalakanta, Tamang S.K. (eds) New Materials, Processing and Manufacturability: Fabrication and Processing of Advanced Materials, Scrivener Publishing LLC. https://doi.org/10.1002/9781394212736.ch7.(Scopus/WoS)
- **Pathak, K.K.,** Giri, A., Barkataki, R., Saikia, M., Mahanta S.(2024). Thermal Analysis of a Steam Turbine Unit of Namrup Thermal Power Plant, Assam, India, In: Pandey, S.M., Maurya A., Hirwani, C.K., Shukla, O.J., Challenges and opportunities in Industrial and Mechanical Engineering: A Progressive Research Outlook, CRC Press, eBook ISBN: 9781032713229, https://doi.org/10.1201/9781032713229. (Scopus/WoS)
- J.Sonowal, **K.K.Pathak,** B.Das. (2024). Experimental study of free convective heat transfer from shrouded finned horizontal channel. In: Pandey, S.M., Maurya A., Hirwani, C.K., Shukla, O.J., Challenges and opportunities in Industrial and Mechanical Engineering: A Progressive Research Outlook, CRC Press, eBook ISBN: 9781032713229, https://doi.org/10.1201/9781032713229. (Scopus/WoS)

Details of the Conference Papers:

- **K.K.Pathak**, A. Giri, R. Barkataki, M. A.Saikia, S. Mahanta, Thermal Analysis of a Steam Turbine Unit of Namrup Thermal Power Plant, Assam, India, International conference on Progressive Research in Industrial & Mechanical Engineering (PRIME - 2021) organized by Department of Mechanical Engineering, National Institute of Technology (NIT), Patna, India.
- J. Sonowal, **K. K. Pathak**, B. Das, Experimental study of free convective heat transfer from shrouded finned horizontal channel, International conference on Progressive Research in Industrial &

  Mechanical Engineering (PRIME - 2021) organized by Department of Mechanical Engineering, National Institute of Technology(NIT), Patna, India.
- **K.K. Pathak**, A. Giri, P. Lingfa, Effects of fin tip to shroud clearance on the thermal performance of rectangular vertical shrouded fin array, IEEE sponsored 4th International Conference on innovation in information, embedded and communication systems (ICIIECS'17) organized by Department of Electronic and Telecommunication Engineering, Karpagam College of Engineering, Coimbatore, Tamil Nadu, India. ISBN- 978-1-5090-3293-8.(Published in IEEE digital library, doi: https://doi.org/10.1109/ICIIECS.2017.8275836. (Scopus)
- **K.K.Pathak**, D.Bhuyan, A survey of pertinent literatures on extended surfaces under combined heat and mass transfer, International Symposium on Aspects of Mechanical Engineering and Technology for Industry: AMETI 2014. (Published in the proceedings vol.1, ISBN-978-93-83842- 95-7.Published by Excel India)
- D.Bhuyan, **K.K.Pathak**, Mixed convective vertical film wise condensation: a review, International Symposium on Aspects of Mechanical Engineering and Technology for Industry: AMETI 2014.(Published in the proceedings (vol.1) with ISBN-978-93-83842-95-7 Published by Excel India)
- **K.K. Pathak**, A. Giri, P. Lingfa, Effects of geometric parameters on heat transfer from a shrouded vertical plate fin array, Proceedings of the National conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), organised by Department of Mechanical Engineering, Tezpur University, 2017. (ISBN-978-93-84388-11-9)
- T.J.Singh, **K.K. Pathak**, D. Bhuyan, M.Romio, A review on laser beam welding and friction stir welding, Proceedings of the National conference on Advances in Welding Technology' organized by department of Mechanical Engineering, NERIST in

collaboration with Indian Welding Society, 2013.

Patent Details (Co-inventor):

Invention: Solar Air Heater System with Modified Absorber
Application Number: 202022104782.0 (German Patent and Trade Mark Office/DPMA) Date of Application: 24.08.2022
Date of Registration: 13.01.2023
Details: A solar air heater (SAH) with a modified absorber and sand based thermal energy storage (TES) to evaluate its thermal performance.

Participation of Training/Workshops/Seminars/Webinars/Faculty Development Programs

- Participated in the "*Regional Meet*" organized by Ministry of Education's (Govt.of India) Innovation Cell held on 4th August, 2022 in Assam Royal Global University, Guwahati.
- Participated and completed successfully AICTE Training and Learning (ATAL) Academy Online FDP on "*Smart Manufacturing-scope and Challenges in Research*" from 17.01.2022 to 21.01.2022 at North Eastern Regional Institute of Science and Technology, Arunachal Pradesh.
- Participated and completed successfully AICTE Training and Learning (ATAL) Academy Online FDP on "*Design Thinking and Product Development*" from 23.08.2021 to 27.08.2021 at National Institute of Technology, Arunachal Pradesh.
- Participated and successfully completed the 5-day online FDP on the theme "*Inculcating Universal Human Values in Technical Education*" organized by All India Council for Technical Education (AICTE) from 26 July, 2021 to 30 July, 2021.
- Participated in the five days faculty development programme titled "*Thermal System Modelling and Optimization using Cycle-Tempo*" organized by School of Mechanical Engineering (SMEC) and Electric Vehicle Incubation, Testing and Research Center (eVIT –RC), Vellore Institute of Technology (VIT) Chennai from 23rd January to 20th February, 2021 (On Saturdays).
- Participated in the one day Webinar on "*Thermo-Chemical Energy Conversion: Future Research Direction*" jointly organized by the School of Mechanical Engineering (SMEC) and the Electric Vehicles Incubation, Testing and Research Centre (eVIT-RC), Vellore Institute of Technology (VIT) Chennai on 4th December, 2020.
- Participated and completed successfully AICTE Training and Learning (ATAL) Academy Online FDP on "*Artificial Intelligence*" from 14.09.2020 to 18.09.2020 at North Eastern Regional Institute of Science and Technology, Arunachal Pradesh.
- Participated in the Webinar series on "*Researches in Surface Engineering for Reliable Tribology*" organized by Department of Mechanical Engineering, GIMT Guwahati, sponsored by the collaborative research scheme of Assam Science and Technology University (ASTU), under TEQIP-III from 1st to 5th September, 2020.
- Participated in the "*Online National Workshop on Simulation of Conventional and Innovative Refrigeration Systems using Cycle-Tempo*" organized by the School of Mechanical Engineering (SMEC), Vellore Institute of Technology (VIT) Chennai during 21st to 22nd August 2020.
- Participated in the "*International Webinar on Modelling Thermo-Fluids*" conducted on 8th August 2020 by the School of Mechanical Engineering (SMEC) of Vellore Institute of Technology Chennai in association with Robert Gordon University Aberdeen United

Kingdom.

- Attended two-days webinar on "*Sustainable Energy and Environmental Practices (SEEP 2020)*" organized by National Institute of Technology, Silchar, Assam, India during June 05 – 06, 2020.
- Participated in the short term course on "*Clean Energy Technologies*" conducted by Centre for Energy (IIT Guwahati) under TEQIP sponsored by the Ministry of Human Resource and Development, Government of India, held on 10^{th} – 14^{th}, June, 2019.
- Participated in the one week TEQIP-III sponsored workshop on "*Mechatronics and Manufacturing Automation (MMA-2018)*" organized by Mechanical Engineering Department, NIT AP, during 29^{th} October to 2^{nd} November, 2018.
- Participated in the TEQIP-II (MHRD-World Bank Project) sponsored Institute-Industry-Interaction Programme on "*Demonstration and Training on Biodiesel Production*" organized by Mechanical Engineering Department, NERIST, during October 17-18, 2016.
- Participated in the "4^{th} *INDEST User Convention (e-Journals user Training Workshop)*" organized by the AICTE-INDEST User Committee, NERIST, held on 22-23^{rd} August, 2015 and 31^{st} October, 2015.
- Participated in the World Bank Sponsored Short term course on "*Appropriate Technology for Rural Development*" under TEQIP organized by department of Mechanical Engineering, NERIST, Arunachal Pradesh during 25^{th} -29^{th} August, 2014.
- Participated in the short-term training programme "*CADD Excellence (Computer Aided Design and Drafting)*" under TEQIP sponsored Faculty Development Programme organized by Mechanical Engineering department, NERIST, Arunachal Pradesh during July 30^{th}-Aug 9^{th}, 2014.
- Participated in the Faculty Development Programme on "*Recent Advances in Tribology and Materials for Tribological Applications*" sponsored by TEQIP (MHRD-World Bank Project) organized by Department of Mechanical Engineering, NERIST, during 10^{th} -14^{th} April, 2013.
- Participated in workshop on "*Recent Trends in Characterization of Materials*" organized by Department of Mechanical Engineering, EPCET, Bangalore, on 18^{th} February, 2011.
- Participated in the training programme conducted on "*Basic Hydraulics & Pneumatics*" (Organized by the VTU-Bosch Rexroth Center of Competence in Automation Technology, Mysore) from 21^{st} to 23^{rd} October, 2010.

Workshop Organized

- Organized a One-week faculty development programme on "*Advancements in Mechanical Engineering*" in GIMT Guwahati in association with Assam Science and Technology University (ASTU) under TEQIP-III, MHRD, New Delhi, held from 29^{th} September, 2019 to 27^{th} September, 2019.

Certification Courses

Pro/E	By CADD Center Training Services, Bangalore
Hyper Mesh	By CADD Center Training Services, Bangalore
ANSYS	By CADD Center Training Services, Bangalore

Academic Achievements

Scholarships:

1. Institute (MHRD) scholarship for pursuing Ph.D. in NERIST (2014-2018).

2. GATE scholarship for pursuing M.Tech in NERIST (2012-2014).
3. Lower primary school scholarship awarded by Govt.of Assam (1999).

AICTE-NITTTR (Swayam) Online Certification (8 Modules) by Ministry of Education, Govt.of India

- Module 1: Orientation towards Technical Education and Curriculum Aspects. ***(Completed)***
- Module 2: Professional Ethics & Sustainability ***(Completed)***
- Module 3: Communication Skills, Modes & Knowledge Dissemination. (*For next enrolment*)
- Module 4: Instructional Planning and Delivery. (*For next enrolment)*
- Module 5: Technology Enabled Learning & Life Long Self Learning. *(For next enrolment)*
- Module 6: Student Assessment and Evaluation. ((*For next enrolment)*
- Module 7: Creative Problem Solving, Innovation and Meaningful R & D. ***(Completed)***
- Module 8: Institutional Management & Administrative Procedures. (***Completed)***

NPTEL (Swayam) Online Certification

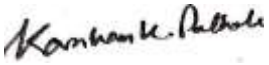
- Steam Power Engineering (July-Dec, 2020, offered by **IIT Guwahati) (*Completed)***
- Introduction to Fluid Mechanics (Jan-June, 2020, offered by **IIT Kharagpur**) **(*Completed)***
- Convective Heat Transfer (Jan-June, 2021, offered by **IIT Roorkee**) **(*Completed)***

Skills

- Computer skills - Microsoft Office and basic knowledge on several research/design oriented computer softwares- MATLAB, FORTRAN 90/95, CAED, CAMD, Pro/E, Hyper mesh, ANSYS- FLUENT, Cycle-Tempo, EES, etc.

Declaration

I hereby declare that the above mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above mentioned particulars.



Date: 29.04.2025

Place: Guwahati, Assam **Dr. Kankan Kishore Pathak**