

## Faculty Profile



1. **Name:** Dr. Yogesh Kumar Prajapati, Assistant Professor

2. **Department:** Mechanical Engineering

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B.I.T. Sindri, Dhanbad – 828123, Jharkhand; India

6. **Qualification:**

Sl. No.	Degree (UG, PG, PhD)	Specialization	Institute	Year
1.	Ph.D.	Thermal Fluid Engineering	IIT Patna, Bihar	2015
2.	M.Tech	Thermal Science & Engineering	IIT Kharagpur, (WB)	2009
3.	B.E.	Mechanical Engineering	SATI Vidisha, (MP)	2007

7. **Area of Specialization:** Thermal Fluid Engineering

8. **Ph.D. Guided:** Completed: 01, Ongoing: 03

9. **Subjects Taught:**

(I) UG:

- (1) Fluid Mechanics
- (2) Fluid machinery
- (3) Engineering Thermodynamics
- (4) Heat and Mass transfer
- (5) Power plant Engineering
- (6) Renewable Energy sources
- (7) Basic Mechanical Engineering
- (8) Engineering Mechanics
- (9) Refrigeration and Air conditioning
- (10) IC Engines

(II) PG:

- (1) Design and analysis of Experiments
- (2) Computational fluid dynamics
- (3) Co-generation and waste heat recovery

10. Professional Experience:

I) Teaching Experience:

Sl. No.	Position held	Name of Organization	From	To
1	Assistant Professor	BIT, Sindri	16.01.2023	Till date
2	Assistant Professor (G-II)	NIT Uttarakhand	16.06.2016	13.01.2023
3	Assistant Professor	BML Munjal University Gurgaon	31.07.2015	31.05.2016
4	Assistant Professor	Graphic Era University Dehradun	26.10.2009	13.07.2011

II) Research Experience:

Sl. No.	Position held	Name of Organization	from	to
1	PhD	IIT Patna	July, 2011	May, 2015

III) Industrial Experience:

Sl. No.	Position held	Name of Organization	from	to

11. Publications:

I) International Journal:

Sl. No.	Title of the Paper	Name of the Journal in which publication has been made	Vol./No .	Public ation Year	Pages
1.	Thermal performance enhancement and optimization of double-layer microchannel heat sink with intermediate perforated rectangular fins	International Journal of Thermal Sciences	Vol. 185	2023	108043

2.	Recent Advancements in Evacuated Tube Solar Water Heaters: A Critical Review of the Integration of Phase Change Materials and Nanofluids with ETCs.	Energies	Vol. 15	2022	8999, 1-25
3.	Tar cracking enhancement by air sparger installation in the combustion zone of the downdraft gasifier	Biomass and Bioenergy	Vol. 166	2022	106620
4.	Air-CO <sub>2</sub> and oxygen-enriched air-CO <sub>2</sub> biomass gasification in an autothermal downdraft gasifier: Experimental studies	Energy Conversion and Management	Vol. 270	2022	116216
5.	CFD analysis of the downdraft gasifier using species-transport and discrete phase model	Fuel	Vol. 328	2022	125302
6.	Influence of three dimensionality effects on thermal hydraulic performance for stepped micro pin fin heat sink	Meccanica	-	2022	-
7.	Influences of tip clearance on flow and heat transfer characteristics of open type micro pin fin heat sink	International Journal of Thermal Sciences	Vol. 179	2022	107714
8.	Experimental investigation of desiccant dehumidification based thermoelectric air-conditioning system	Journal of Engg. Research	-	2021	-
9.	Fluid flow and heat transfer behavior in distinct array of stepped micro-pin fin heat sink	Journal of Enhanced Heat Transfer	Vol. 28	2021	31-61
10.	Comparative Analysis of Heat transfer and fluid flow in Circular and Rhombus Pin Fin heat sink Using Nanofluid	ASME Journal of Thermal Science and Engineering Applications	Vol. 13	2021	051028-14
11.	CFD analysis of biomass gasification using downdraft gasifier	Materials Today Proceedings	Vol. 44	2021	4107-4111
12.	Thermal performance of open microchannel heat sink with variable pin fin height	International Journal of Thermal Sciences	Vol. 159	2021	106609
13.	Recent progress in thermochemical techniques to produce hydrogen gas from biomass: A state of the art review	International Journal of Hydrogen Energy	Vol. 44	2019	25384-25415
14.	Influence of fin height on heat transfer and fluid flow characteristics of rectangular microchannel heat sink	International Journal of Heat and Mass Transfer	Vol. 137	2019	1041-1052
15.	Flow boiling instabilities in microchannels and their promising solutions – A review	Experimental Thermal and Fluid Science	Vol. 88	2017	573-593
16.	Numerical Investigation of Subcooled Flow Boiling in Segmented finned Microchannels	International communications in Heat and Mass Transfer	Vol. 86	2017	215-221
17.	Bubble Dynamics and Flow Boiling Characteristics in Three Different Microchannel Configurations	International Journal of Thermal Sciences	Vol. 112	2017	371-382
18.	Transient heat transfer characteristics of segmented finned microchannels	Experimental Thermal and Fluid Science	Vol. 79	2016	134–142
19.	Clogging Behavior of an Elongated Bubble in Uniform and Diverging Microchannels	Journal of Mechanical Engineering science Part: C. IMechE	Vol. 230	2016	1861-1875
20.	Transient analysis of microchannel heat sink during single phase and flow boiling conditions	Applied Mechanics and Materials	Vol. 819	2016	101-106
21.	Computational Fluid Dynamics Modeling of Two-phase Flow in an Adiabatic Capillary Tube	ASME Journal of Thermal science and Engineering Application,	Vol. 7	2015	011006 1-7

22.	A comparative study of flow boiling and heat transfer in three different configurations of microchannels	International Journal of Heat and Mass Transfer	Vol. 85	2015	711-722
23.	Two-phase VOF model for the refrigerant flow through adiabatic capillary tube	ASHRAE Transactions	Vol. 120	2014	60-67

## II) International Conference:

Sl. No.	Title of the Paper	Name of the Conference in which publication has been made	Vol./No.	Publication Year	Pages
1.	Comparative CFD analysis of heat transfer and melting characteristics of the PCM in enclosures with different fin configurations	9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 14-16, 2022, IIT Roorkee	-	2022	-
2.	Sampling and Measurement of Tar in the Product Gas of the Downdraft Gasifier: A Case Study	26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference December 17-20, 2021, IIT Madras	ISSN: 2688-7231 (Online)	2021	2501-2505
3.	Heat Transfer Augmentation in Micro Pin Fin Heat Sink Using Out of Plane Fluid Mixing				1595-1600
4.	Experimental Investigation of Variable Tip Clearance in Square Pin Fin Microchannel Heat Sink				1351-1356
5.	Thermal Performance Studies on a Packed Bed Regenerator Using Wire Screen Matrix Air Heater				1181-1187
6.	Numerical Analysis of Heat Transfer Performance of Double Layer Microchannel Heat Sink with Semi-circular Bumps and Slits				709-714
7.	Numerical Simulation of Heat Transfer and Pressure Drop in Two Different Configurations of Pin Fin Microchannel Heat Sink	8th International and 47th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 09-11, 2020, IIT Guwahati	-	2020	-
8.	Comparative Study of Heat Transfer Performance of Open and Closed Rectangular Microchannel Heat Sink	25th National & 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference, 28-31 Dec 2019, IIT Roorkee	ISSN: 2688-7231 (Online)	2019	329-334
9.	Thermodynamic Equilibrium Model of Downdraft Gasifier: Stoichiometric Model	Third International Conference on Sustainable Energy and Environmental Challenges (3rd SEEC) 18 –21 December, 2018, IIT Roorkee	-	2018	-
10.	Investigation of heat distribution and thermal stress distribution of piston	International Conference on Computational Methods for Thermal Problems, IISc Bangalore India 9-11 July, 2018	ISSN 2305-6924	2018	829-832

11.	Performance Analysis of Micro channels with Different aspect ratio (DES-137)	International Conference on contemporary design and analysis of Manufacturing and Industrial Engineering system, NIT Trichy India, 18-20 Jan 2018	-	2018	-
12.	Improved Model for Predicting Bubble Growth during Flow Boiling	24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2017), BIT Hyderabad, 27-30 December 2017	-	2017	1589-1593
13.	Study of bubble dynamics in circular and diamond shaped pin fin microchannels				2027-2032
14.	Flow Visualization Study of Reverse Flow Phenomenon in Microchannel	6th International and 43rd National Conference on Fluid Mechanics and Fluid Power (FMFP), MNNITA, Allahabad, U.P., India, December 15-17, 2016	-	2016	-
15.	Effect of Inlet configurations on bubble Evolution in microchannel	International Conference on Recent trends in Engineering and Materials science, JNU Jaipur, March 17-19, 2016	-	2016	-
16.	Investigation of flow boiling heat transfer in segmented finned microchannels	23rd National and 1st international ISHMT-ASTEF Heat and Mass transfer conference, ISRO, Thiruvananthapuram Kerala, December 17-20, 2015	-	2015	-
17.	Performance Analysis of Uniform and Expanding Cross-section Microchannels for Single Phase and Flow boiling Heat Transfer	5th International and 41th national conference on Fluid Mechanics and Fluid Power (FMFP-2014) IIT Kanpur, India, December 12-14, 2014	-	2014	-
18.	Experimental and numerical analysis of microchannel heat sink	International mechanical engineering congress (IMEC-2014), NIT Tiruchirappalli, India, June 12-15, 2014	-	2014	133-136
19.	A Comparative Study of Subcooled Flow Boiling in Uniform, Diverging Cross-section and Segmented Finned Microchannels	12th International Conference on Nanochannels, Microchannels, and Minichannels, Chicago, Illinois, (USA) August 3-7, 2014	-	2014	-
20.	Numerical investigation of refrigerants flow through an adiabatic capillary tube	22nd National and 11th ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur. December 28-31, 2013	-	2013	-

National Journal:

Sl. No.	Title of the Paper	Name of the Journal in which publication has been made	Vol./ No.	Publication Year	Pages

III) National Conference:

Sl. No.	Title of the Paper	Name of the Conference in which publication has been made	Vol./No.	Publication Year	Pages
1.	Numerical investigation of flow boiling in microchannels	National conference on recent advances in Mechanical Engineering, NIT Kurukshetra 2-3 June 2017	-	2017	-
2.	Effects of surface wettability and cross section area on the evolution of an elongated bubble in a microchannel	40th National conference on Fluid Mechanics and Fluid Power (FMFP-2013) NIT Hamirpur, India, December 12-14, 2013.	-	2013	856-863

#### IV) Book Chapter:

Sl. No.	Title of the Chapter	Name of the Book in which publication has been made	ISBN	Publication Year	Pages
1.	Thermal Performance Study of a Copper U-Tube-based Evacuated Tube Solar Water Heater	Energy Conversion and Green Energy Storage” 1st edition, CRC press, Taylor & Francis	9781003258209	2022	-
2.	Experimental Analysis of a Thermoelectric Air-Conditioning System with Desiccant Dehumidification	Recent Advances in Industrial Production. Lecture Notes in Mechanical Engineering. Springer, Singapore	978-981-16-5280-6	2022	-
3.	Numerical Study of Fluid Flow and Heat Transfer in Stepped Micro-Pin-Fin Heat Sink	Fluid Mechanics and Fluid Power	978-981-16-0697-7	2021	-
4.	Analysis of Mechanical Behavior of Sandwich Panels	Advances in Engineering Design. Lecture Notes in Mechanical Engineering, Springer, Singapore.	978-981-33-4018-3	2021	499-508
5.	A Numerical Study to Investigate the Modal Analyses of Cracked Airplane Wing (NACA2415)	Advances in Applied Mechanical Engineering. Lecture Notes in Mechanical Engineering. Springer	978-981-15-1200-1	2020	405-411
6.	Numerical Analysis of Different Arrangement of Square Pin-Fin Microchannel Heat Sink	Advances in Mechanical Engineering, Springer Singapore	978-981-15-0123-4	2020	879-891

#### 12. Patents (Filed/Granted)

Sl. No.	Name of the Inventor	Title of the Invention	Application/ Patent No. (As applicable)	Year	Status (Filed / Granted)
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1.	Anurag Maheswari, Manoj Kr. Singh, Yogesh Kr. Prajapati, Niraj Kumar, Vineet Singh	Desiccant Assisted Air Conditioning System	Indian Patent application no. 202111000055	2021	Published
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### 13. Conference/ Workshop/Seminar/ Organized

Sl. No.	Title of Seminar / Conferences / Short – term Courses	Funding / Sponsoring Agency	Date of Seminar / Conferences / Short – term Courses
1.	A Five-day workshop on Entrepreneurship and Innovation as a Career Opportunity.	NIT Uttarakhand	04-08 January, 2023
2.	Five-day Online Short-Term Course (STC) on Renewable Energy: Pathways and Technologies	NIT Uttarakhand	31 <sup>st</sup> Oct-4 <sup>th</sup> Nov., 2022
3.	Five-day workshop on Pragmatic approach toward Innovations in Product Design and Manufacturing during at IIT Roorkee	DIC, NIT Uttarakhand	July 04 - 08, 2022
4.	One-week short term course on Computational and Experimental Techniques in Heat Transfer and Fluid Flows, at NIT Uttarakhand,	NIT Uttarakhand	March 01-05, 2021
5.	Two weeks international winter school on Fluid dynamics, Heat transfer and Applications, Organized by NIT Uttarakhand,	NIT Uttarakhand	Jan. 18-29, 2021
6.	International Conference on Advances in Materials Processing & Manufacturing Applications	MNIT Jaipur and NIT Uttarakhand	05-06 Nov. 2020
7.	Six Days STTP on Computational Techniques and Programming jointly organized by NITUK and SLIET Longowal	TEQIP III sponsored under Twinning	20-25 July 2020
8.	International conference on Innovative Engineering Design (ICoIED 2020) jointly with IEI Dehradun	NIT Uttarakhand	18-20 Jan. 2020
9.	One-week short term training program (STTP) on Emerging Topics in Fluid Mechanics	TEQIP III	14-18 Oct. 2019
10	State level exhibition cum innovation competition	Design and Innovation center (DIC) NIT Uttarakhand	27 Sept. 2019
11	Six days Workshop on Productivity Enhancement Program by Vyakti Vikas Kendra (Art of living) at NIT Uttarakhand	TEQIP III	22-27 July 2019
12	One-week Short Term course on Application of Statistics in Experimental Techniques, jointly	TEQIP III	29 July -02 August 2019

	organized by NIT Uttarakhand and MNIT Jaipur		
13	Five days' workshop on Design thinking for Innovative products	DIC NIT Uttarakhand	04-08 March 2019
14	One day workshop on "Energy Audit and Energy Efficiency at NIT Uttarakhand	UREDA and UPSE Dehradun	10 Dec. 2018

#### 14. Symposium/ Workshop/Seminar/ Attended

Sl. No.	Title of Seminar / Conferences / Short – term Courses	Date	Organizing Institute
1.	Five Days FDP on Capacity building and Productivity Enhancement	31 May - 4 June 2022	NIT Uttarakhand,
2.	Online Professional Development Training Programme for Faculty & Administrators	11-13 Jan 2021,	IIM Visakhapatnam
3.	Advance Pedagogy (Online) course on Non-Fourier Heat Transfer under TEQIP-III-KITE	11-13, 18-20 Dec 2020	IIT Bombay
4.	One week workshop on Writing research paper & Grand proposals: Scientific, Technical and Ethical Practices & conduct	24-28 August 2020	NIT Uttarakhand
5.	Faculty development program (FDP) on Outcome based education (OBE) system, jointly organized by NBA section R&C section form	20-25 July 2020	NIT Uttarakhand
6.	Faculty Awareness Programme on ONLINE TEACHING PEDAGOGY IN HIGHER EDUCATION	11-14 June 2020	NIFTEM Sonapat, Haryana
7.	Two Days FDP on Importance of Intellectual Property in Academics	25-26 Nov. 2019	NIT Uttarakhand
8.	Curriculum Development Workshop	10-11th June 2019	NIT Uttarakhand
9.	Professional Development training (PDT) under TEQIP III	21-25 May 2018	IIM Kashipur
10.	Faculty development Program on Computer based product design and manufacturing	09-13 Feb. 2018	Electronic and ICT academy IITR & NIT Uttarakhand
11.	Faculty development Program on Modern Pedagogy Techniques for Enhancing Teaching Skills	24th – 28th July 2017	NIT Uttarakhand
12.	Three days' Workshop on Curriculum Design and Course	17-19 Nov 2015	BML Munjal University Gurgaon
13.	IEEE Workshop on MEMS, Micro fluidics & Microsystems	04-06th July 2013	IIT Kharagpur
14.	Short-term course on Application of Fluid Mechanics including CFD in Chemical & Allied Industries	23-27 May 2011	NITTTR Chandigarh



15. Administrative Position Held:

Sl. No.	Position held	Name of Organization	from	to
1	Coordinator, Standing Committee	NIT Uttarakhand	28-11-2022	13-01-2023
2	Member, NIRF Cell		21-04-2022	13-01-2023
3	Coordinator, Convocation		22-06-2021	13-01-2023
4	Coordinator (AISHE, NBA and NIRF Cell)		01-09-2021	20-04-2022
5	Coordinator, Community Development		01-09-2021	20-04-2022
6	Coordinator, Scholarship		01-06-2020	31-01-2021
7	Dy. Center In-charge		CCMT-2020	
8	Dy. Center In-charge		CSAB-2019	
9	Nodal Officer-Scholarship		10-07-2019	01-06-2020
10	Coordinator UG & PG-Scholarship		03-06-2019	01-06-2020
11	Coordinator PG-Scholarship		12-07-2018	02-06-2019
12	Nodal Officer (Academic)-TEQIP III		10-04-2018	31-01-2022
13	Member-Advisory committee of Faculty Recruitment 2018			
14	Incharge-Dispensary	NIT Uttarakhand	03-05-2017	02-06-2017
15	Associate/Assistant Warden		18-07-2016	05-07-2018

16. Award / Recognition Bestowed on Faculty (State / National / International)

- Appreciation Letter by Director NIT Uttarakhand, for conducting *State level exhibition cum innovation competition* organized by Design and Innovation center (DIC) on 27Sept. 2019 at NIT Uttarakhand.
- Best paper award for the research paper titled “Bhoopendra Pandey, Yogesh K. Prajapati, Pratik N. Sheth, (2020), CFD Analysis of Biomass Gasification using Downdraft Gasifier” presented in *International Conference on Advances in Materials Processing & Manufacturing Applications (iCADMA 2020)*, MNIT Jaipur 05-06 Nov. 2020.
- Appreciation certificate by Director NIT Uttarakhand, for conducting 2<sup>nd</sup> convocation of NIT Uttarakhand (on 25<sup>th</sup> Sept 2021) as Coordinator 2<sup>nd</sup> Convocation.
- Expert lecture of topic “**Understanding Product design**” in AICTE sponsored Five-day workshop on 3D Printing and Design, 16-20 Oct. 2019. At National Institute of Technology Uttarakhand.
- Expert talk on (25/07/2020) “Introduction to Workbench-ANSYS” in *Six Days STTP on Computational Techniques and Programming (TEQIP III sponsored under Twinning)* jointly organized by NITUK and SLIET Longowal from 20-25 July 2020.
- Guest lecture on (08 /08/2020) “**Fundamental theory of two-phase flows**” in Online STC on Computational Fluid Dynamics for Solving Engineering Problems, MNIT Jaipur 7-11 August 2020.
- Expert lecture on (20/03/2021) **Heat transfer enhancement using mini/microchannels**, STTP on Recent Advances in Fluids and Thermal Engineering (RAFT-2021) March 15 – 20, 2021

Department of Mechanical and Aerospace Engineering IITRAM Ahmedabad – 380026, Gujarat.

- Expert lecture on (22/02/2022) *Mini/microchannel heat sink as cooling device*, AICTE-QIP Short-Term Course on “Not-in-kind of Cooling Technologies and Thermal Management for Electronics” from 21<sup>st</sup> -26<sup>th</sup> February 2022, Department of Mechanical Engineering IIT Indore.
- Expert lecture on (21/12/2022) **CFD Modeling of fluid flow and heat transfer in mini&micro channel heatsink**, A Five Days Short-Term Course on “CFD for Applied Engineering Problems with Hands-on Practice” from 19-23 Dec. 2022, NIT Rourkela.
- Invited to chair a session in *National conference on recent advances in Mechanical Engineering (NCRAME)*, NIT Kurukshetra 2-3 June 2017.
- Invited to chair a session in *International Conference on Advances in Materials Processing & Manufacturing Applications (iCADMA 2020)*, MNIT Jaipur 05-06 Nov. 2020.
- Chaired an oral presentation session in the international conference on Energy conversion and Thermo-fluid systems (i-CONNECTS 2021) Department of Mechanical Engineering MNIT Jaipur Nov. 19-20 2021. on Nov. 19, 2021

#### REVIEWER:

- 1) Conference paper FMFP-2016, 2018, 2021
- 2) One chapter of book “Engineering thermodynamics” by PK Nag. For new edition.
- 3) Reviewer of International Journal of Hydrogen Energy (Elsevier)
- 4) Reviewer of Int. J of Heat and mass transfer (Elsevier)
- 5) Reviewer of Int. J of Multiphase Flow (Elsevier)
- 6) Reviewer of Int. Communications in heat and mass transfer (Elsevier)
- 7) Reviewer of Journal of Thermal Science and Engineering Application (ASME)
- 8) Reviewer of Journal of Thermal Sciences (Elsevier)
- 9) Reviewer of Experimental Thermal Fluid Science (Elsevier)
- 10) Reviewer of Journal of Thermal Analysis and Calorimetry (Springer)
- 11) Reviewer of Journal of enhanced heat transfer (Begel house)
- 12) Conference paper IHMTC 2019 held at IIT Roorkee.

#### 17. Members of Professional Bodies:

- Lifetime member of *Indian society for technical education* (ISTE). Membership No (LM 76302).
- Life member National Society for Fluid Mechanics and Fluid Power (NSFMFP). Membership No: LM809
- Life member Indian Society for Heat and Mass Transfer (ISHMT). Membership No: 1485