Cover letter and CV

Dear Sir,

I am Dr. Manoj Kumar Singh, working as an Assistant Professor at the Department of Civil Engineering, Shiv Nadar Institution of Eminence, Greater Noida, UP, India. I was **a visiting subject expert at the Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia, and an Ex-JSPS Postdoctoral Fellow at the University of Tokyo, Japan.** I also worked as a Senior Research Analyst at Integrated Research and Action for Development (IRADe), a center of Excellence designated by the Ministry of Urban Development. Before that, I was a Postdoctoral Fellow at the University of Liege, Belgium, from September 2011 to November 2013. I did my PhD at the Indian Institute of Technology Delhi in August 2011. The title of my Ph.D. thesis is ***"Bioclimatic Design of Built-Environment for North-East India".***

Before the present assignment, I was extensively working on adaptive thermal comfort estimation in offices in North-East India and in classrooms in university buildings in India**.** The same will also be visible in my international journal publications. As a Postdoctoral Fellow at LEMA, University of Liege, Belgium, I worked on historical Belgian buildings to identify ways to improve indoor thermal comfort and energy efficiency, and to propose retrofit strategies. **My areas of interest are Climatology, Heat stress analysis, Adaptive Thermal Comfort, Occupant behaviour and Built Environment Interaction, Building Energy Simulation, and Energy Performance of Building Envelopes.** I have presented my research findings at international forums like the Solar World Congress, ISES-AP 2008, SDEWES 2013, ICHES Conference, Healthy Buildings, and Asia Conference, among others. I am also on the list of experts for energy-efficient building envelopes for the buildings of North-East India. I have more than 75 publications in refereed International Journals (Elsevier), International conferences (ISES, Solaris, ICORE, and REA), National conferences, and National Magazines, with high citations. I am also a **reviewer for 20 high-ranked international/national journals**. For my research, I am extensively using building energy simulation tools such as TRNSYS. I am also an Indian Green Building Council (IGBC) accredited professional, a silver member of the International Solar Energy Society, and a life member of the Solar Energy Society of India.

I am the recipient of the prestigious JSPS Postdoctoral Fellowship and the University of Liege Postdoctoral Fellowship. I also received a fellowship from the Ministry of Human Resource Development, Govt. of India funded, Indian Institute of Technology Delhi during my PhD research, North East Council scholarship, Govt. of India (2000- 2002), Ministry of New and Renewable Energy Fellowship, Govt. of India (2002-2004), Urban habitat forum fellowship and international travel grants from various Govt. agencies like Department of Science and Technology, Govt. of India, CSIR Govt. of India, CCSTDS Govt. of India and Australian and New Zealand Govt. jointly. Regarding collaborative work, I would say that I am working in collaboration with **Prof. Jacques Teller**, Chairman, Department of ArGEnCo, and **Prof. Richard de Dear, Sydney University**, Australia, **Late Prof. N. K. Bansal**, Prof. (Retd.) IIT Delhi, EX-VC SMVD University J&K, **Prof. J. Mathur,** MNIT Jaipur, **Prof. S. Mahapatra**, Assistant professor, Department of Energy, Tezpur University, Napaam, Assam, India, **Prof. B. Givoni**, UCLA, USA, **Prof. Deo Prasad**, Scientia Professor, Chief Executive Officer, CRC for Low Carbon Living Ltd, University of New South Wales, Sydney, Australia, **Dr. A. Kumar**, CBRI, Roorkee, **Prof R. Ooka**, The University of Tokyo, and **Prof. H. B. Rijal**, Tokyo City University. This collaborative work has resulted in research papers in international journals of repute with citations. I am trying my level best to contribute to the assigned work and the Institute.

All the information provided is true to the best of my knowledge.

Sincerely yours,
Manoj Kumar Singh.

Enclosure: -

Curriculum Vitae

Dr. Manoj Kumar Singh
Assistant Professor,
Department of Civil Engineering
Shiv Nadar Institution of Eminence
Tehsil Dadri, Greater Noida,
Uttar Pradesh 201314, India
Phone No: +91-9127395418 (mobile India)
E-mail: manoj.singh@snu.edu.in,
mksinghtu@gmail.com, mksinghiitd@gmail.com

Computer proficiency: Building Energy Simulation tools: **TRNSYS**, **E-Quest, ANSWER-TIMES (**The Integrated MARKAL-EFOM System), **Reference Energy System (RES) for India,** ArcGIS, MATLAB, Adobe Photoshop, Coral Draw, **SPSS**

Area of interest: Adaptive Thermal Comfort, Occupant Behaviour and Built Environment Interaction, Bioclimatic Building Design and Sustainability, Building Energy Simulation, Energy Performance of Building Envelopes, Machine Learning Applications in Adaptive Thermal Comfort.

Profiles:-

Google Scholar profile, please visit the link
http://scholar.google.co.in/citations?user=DOKoIDYAAAAJ&hl=en
ResearchGate profile, please visit the link
https://www.researchgate.net/profile/Manoj_Singh55
Scopus Database
http://www.scopus.com/authid/detail.url?origin=resultslist&authorId=55319636100&zone=
Orcid ID
https://orcid.org/0000-0002-7696-846X

Academic records:

Name of the University/Board Institute	Examinations	Date of passing	Division/ Class with position	Maximum marks and marks secured for the entire degree	Percentage of marks obtained and position, if any,
Jagiroad College (Guwahati University)	B.Sc. (Physics)	Sept. 2000	**I**	MM 900 MO 560	62.2
Tezpur University	M.Sc. (Physics)	June 2002	**I**	MM 10 MO 7.53	70.3
Tezpur University	M. Tech. (Energy Tech.)	June 2004	**I**	MM 10 MO 8.12	76.2
			Thesis: "Development of Design Guidelines for Energy Efficient Buildings for North-Eastern Region"		
Indian Institute of Technology Delhi	PhD	July 2011	***Thesis: "Bioclimatic Design of Built-Environment for North-East India"***		

Pre and Post Ph.D. experience

Name of the University/ Institute/Designation	Date of Joining	Date of Leaving	Total Experience	Area of Research Work
Jagiroad College **Guest Lecture**	4th Oct 2004	28th Feb 2005	**5 months**	Teaching UG students
Project Associate Jagiroad College	1st July 2005	30th Nov 2005	**5 months**	Running Entrepreneurship Development Cell

University of Liege (**Postdoctoral Fellow**)	1st September 2011	15th Nov 2013	**2 Years 2.5 months**	Thermal comfort in Built Environment and energy efficiency in Belgian buildings
Integrated Research and Action for Development (IRADe) (**Senior Research Analyst**)	20th Jan 2014	9th Oct 2015	**1 Year 9 months**	Energy policy, Energy modelling, Climate change, and Urban development
The University of Tokyo Institute of Industrial Science **JSPS Postdoctoral Fellow**	25th Nov 2015	24th Nov 2017	**2 Years**	Adaptive thermal comfort in the offices of NE India, Building Energy Simulation, and Envelope optimization
Siddhirja Environment Technologies Pvt. Ltd **Deputy Director**	1st Dec 2017	31st Oct 2019	**1 year 11 months**	Running and supervising a team
University of Ljubljana, Faculty of Civil and Geodetic Engineering, **Visiting Lecture**	7th Nov 2019	31st March 2020	**5 months**	Teaching and supervising students, Research
NIT Arunachal Pradesh, Department of Electrical Engineering **Visiting Subject Expert**	20th Jan 2021	3rd June 2022	**1 year 5 months**	Teaching and supervising students, Research
Shiv Nadar Institution of Eminence Department of Civil Engineering **Assistant Professor**	20th June 2022	Continuing	**4 Years**	Teaching and supervising students, Research

Collaborative Research

S. No.	Organization/Collaborative Publications
1	Collaboration with the Centre for Energy and Environment, Malaviya National Institute of Technology, Jaipur 302017, India.
2	Collaboration with the Department of Human and Social Systems, Institute of Industrial Science, The University of Tokyo, Tokyo 153-8505, Japan.
3	Collaborated with the Department of Architecture & Regional Planning, Indian Institute of Technology Kharagpur 721302, West Bengal, India.
4	Collaborated with the Faculty of Environmental Studies, Tokyo City University, Yokohama, Japan.
5	Collaborated with the Renewable and Energy Efficiency Research Group, Department of Mechanical Engineering, Dr B R Ambedkar National Institute of Technology, Jalandhar, Punjab, 144011, India.
6	Collaborated with the IEQ Laboratory, School of Architecture, Design and Planning, The University of Sydney, Sydney, Australia.
7	Collaborated with the Department of Energy, Tezpur University, Tezpur, 784028, Assam, India.
8	Collaborated with the Department of Energy and Department of Architecture, NEHU, Shillong, during my JSPS postdoctoral research. They assisted me in hiring and collecting thermal comfort data in the office buildings of Shillong.
9	Collaboration with the Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia.
10	Collaboration with the Department of Mechanical Precision Engineering, Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia.
11	Collaboration with the Faculty of Applied Sciences, Department of ArGEnCo, Local Environment Management and Analysis (LEMA), University of Liege, Belgium.

12	Collaboration with the Architectural Engineering Department, College of Engineering, Najran University, Najran 66426, Saudi Arabia.
13	Collaboration with the School of Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ, USA.
14	Collaboration with the Department of Environmental Science, Bangladesh Agricultural University, Mymensingh, 2202, Bangladesh.

Final Year B.Tech.(FYUP). Projects: Supervised/ Supervising

S. No.	Year	Semester	Title/Student Name	Status/Remarks
1	2024-2025	Monsoon Semester (Aug-Dec 2024)	**Study to analyse and optimize the status of thermal comfort in naturally ventilated hostel room of Shiv Nadar Institution of Eminence** Department of Civil Engineering, Shiv Nadar Institution of Eminence. Student Name: Thakur Aaryan Singh	**Completed.**
2	2024-2025	Monsoon Semester (Aug-Dec 2024)	**Indoor Environment quality in the faculty cabins and classrooms of Shiv Nadar Institutions of Eminence** Department of Civil Engineering, Shiv Nadar Institution of Eminence. Student Name: Shrey Gupta	**Completed**
3	2024-2025	Spring Semester (Jan-May 2025)	**Heat Flux and Air Flow Analysis of Naturally Ventilated Hostel Building to Optimize the Thermal Comfort Using Building Energy Simulation** Department of Civil Engineering, Shiv Nadar Institution of Eminence. Student Name: Thakur Aaryan Singh	**Completed**

Undergraduate Research Projects (OUR): Supervised/ Supervising

S. No.	Year	Title/Student Name	Status/Remarks
1	2022-2023	**Study To Understand the Thermal Performance of a Non-Air-Conditioned Hostel Room of Shiv Nadar Institution of Eminence Using Building Energy Simulation** Department of Civil Engineering, Shiv Nadar Institution of Eminence. Student Name: Thakur Aaryan Singh	**Completed.** The final report submitted to Shiv Nadar Institution of Eminence and Research received an **"Excellent"** remark.
2	2023-2024	**Study to Enhance the Thermal Comfort of a Non-Airconditioned Hostel Room of Shiv Nadar Institution of Eminence** Department of Civil Engineering, Shiv Nadar Institution of Eminence. Student Name: Thakur Aaryan Singh	**Completed.** The final report submitted to Shiv Nadar Institution of Eminence and Research received a **"Very Good"** remark. A research article based on this work has been published in the journal **Advances in Building Energy Research**. DOI - 10.1080/17512549.2026.2654580

M.Tech. thesis: Co-Supervised/Co-Supervising

Soon after completing my Ph.D., I got the opportunity to co-supervise master's students for their master's thesis. The entire work was planned upon discussion with the student in the context of his strengths to be able to complete the assigned work. I also successfully motivated the students to do quality work, which led to publication in reputed international journals and international conferences, as listed below.

S. No.	Year	Title/Student Name	Status/Remarks
1	2012-2013	**Thermal Comfort in Naturally Ventilated Classrooms** Department of Energy, Tezpur University Student Name: Plabita Baruah	**Completed.** Paper presented in the international conference PLEA 2014, December 16 – 18, 2014, Ahmadabad, Gujarat, India.
2	2012-2013	**Estimation of degree days for different climatic zones of North-East India** Department of Energy, Tezpur University Student Name: Pallavi Borah	**Completed.** A research article based on this work is published in an international journal (Elsevier), "Sustainable Cities and Society (2015); 14(1): 70-81".
3	2013-2014	**Thermal Characteristics of a Vernacular Building Envelope** Department of Energy, Tezpur University Student Name: Priyanka Dhar	**Completed.** Paper presented in an international conference, PLEA 2014, December 16 – 18, 2014, Ahmadabad, Gujarat, India.
4	2016-2017	**Thermal comfort in the offices of Tezpur** Department of Energy, Tezpur University Student Name: Dulal Baruah	**Completed**
5	2016-2017	**Evaluate the effectiveness of Solar-passive features in buildings of Tezpur.** Department of Energy, Tezpur University Student Name: Bornita Fouzdar	**Completed**
6	2019-2025	**Thermal Comfort Study in Slovenian residential houses in the winter season** Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia Student Name: Marko Nusdorfer	**Completed.** A research article based on this work has been submitted to the international journal Energy and Buildings (Elsevier) and is currently under review.
7	2019-2022	**Thermal performance study of Slovenian log (wooden) houses** Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia Student Name: Matic Možina	**Completed.** Two research articles based on this work were published in an international journal. Advances in Building Energy Research, 18:2, 180-215 and Energy & Buildings 307 (2024) 113951.
8	2020-2021	**Estimation of Degree days and bioclimatic classification of Sri Lanka,** Department of Energy, Tezpur University Student Name: N Pravin Diliban	**Completed.** A research article based on this work is published in an international journal (Elsevier), "Journal of Building Engineering (2024); 83(4): 108388".

Ph.D. thesis: Supervising/Supervised

The following are the details of the students who are carrying out his/her doctoral research under my supervision.

S. No.	Year	Title/Student Name	Status/Remarks
1	Sept 2022-Continuing	**Net-Zero Energy Buildings in India** Department of Civil Engineering, Shiv Nadar Institution of Eminence Student Name: **N Pravin Diliban**	**Ongoing**

Chairing Sessions and Scientific committees of international conferences

1. **Co-chaired a session, "Sri Lanka Academy of Young Scientists" SCA-16 Conference** (Science Council of Asia), May 30-June 1, 2016, Colombo, Sri Lanka.
2. **Co-chaired a session "Simulation 2", ICHES 2016,** Nagoya University, Nagoya, JAPAN, October 29 – November 2, 2016.

3. **Co-chaired a session "Climate Change Impacts Indoor Environment", Healthy Buildings 2017 Asia,** College of Medicine, National Cheng Kung University in Tainan, Taiwan, September 2 – 5, 2017.
4. I am on the **scientific committee** of the international conference **IAQVEC 2023,** the 11th international conference on indoor air quality, ventilation & energy conservation in buildings, which will be held in Tokyo on May 20-23, 2023.
5. I am a **Technical Committee Member** (reviewer) of the 2024 11th International Conference on Geological and Civil Engineering (ICGCE 2024), which will be held in Matsue, Japan, March 15-17, 2024.
6. **Chaired a session "Nature-Based Solutions", CATE-2023,** CEPT University, Ahmedabad, Gujarat, India, December 13 – 15, 2023.
7. I am a **Technical Committee Member** (reviewer) of the 2025 5th International Civil Engineering and Architecture Conference (CEAC 2025), which will take place on March 28-31, 2025, in Tokyo, Japan.
8. I am on the **Scientific Committee for the 14th International Symposium on Heating, Ventilating, and Air Conditioning (ISHVAC 2025)**, which will take place from November 29 to December 2, 2025, in Tokyo, Japan.
9. I am on the **scientific committee** of the international conference **IAQVEC 2026,** the 11th international conference on indoor air quality, ventilation & energy conservation in buildings, which will be held at the University of Southern California, Los Angeles, California, USA, and Tokyo on May 18-22, 2026.
10. I am a **Technical Committee Member** (reviewer) of the 2026 13th International Conference on Geological and Civil Engineering (ICGCE 2026), which will take place in Fukuoka, Japan, during March 6-8, 2026.
11. I am a **Technical Committee Member** (reviewer) of the 2026, 5th International Civil Engineering and Architecture Conference (CEAC 2026), which will take place on March 20-23, 2026, in Hong Kong.

Editorial Assignment

1. Assigned as **Guest Editor with Dr. Mitja Košir for a Special Issue of the Sustainability journal** (ISSN 2071-1050, IF = 3.889). Please visit the following link for more information https://www.mdpi.com/journal/sustainability/special_issues/Buildingstomorrow_High-PerformanceBuildings
2. Assigned as **Guest Editor with Prof. Hom B. Rijal for a Special Issue of the Energies journal** (ISSN 1996-1073, IF = 3.253). Please visit the following link for more information https://www.mdpi.com/journal/energies/special_issues/thermal_comfort_and_energy_use_in_buildings
3. Review Editor of Frontiers in Mechanical Engineering, Frontiers in Built Environment, Frontiers in Energy Research, and Frontiers in Built Environment - Sustainable Design and Construction Journals.
4. Assigned as **Guest Editor with Prof. Hom B. Rijal and Dr. Sally Shahzad for a Special Issue of the Energies journal** (ISSN 1996-1073, IF = 3.253). Please visit the following link for more information https://www.mdpi.com/journal/energies/special_issues/A8ZHB9Z6C2.
5. Joined the Editorial Board of Advances in Building Energy Research Journal, Taylor and Francis online in November 2022. https://www.tandfonline.com/action/journalInformation?show=editorialBoard&journalCode=taer20
6. Joined the Editorial Board of DIMENSI: Journal of Architecture and Built Environment, Institute of Research and Community Outreach, Petra Christian University, Jl. Siwalankerto 121-131, Surabaya 60236, Indonesia online in July 2025. https://dimensi.petra.ac.id/index.php/ars/about/editorialTeam.

Achievements/Awards:

i) Represented K.V. Jagiroad in the regional Science exhibition at **Guwahati** (1994)
ii) I was declared the man of the series in the University Week cricket competition 2002 – 2003.
iii) **NEC scholarship** awarded during the M.Sc. course (Aug 2000 – July 2002).
iv) **MNRE fellowship** awarded during M.Tech. Course in Energy Technology (Aug 2002 – July 2004).

v) Received travel grant from DST and CCSTDS for attending the ISES conference in Sydney, Australia, in November 2008.

vi) Awarded AUS$1000 as a scholarship from the Australian & New Zealand Solar Energy Society jointly for attending the ISES conference in Sydney, Australia, Nov 2008.

vii) Received Urban Habitat Fellowship to attend Urban Habitat Summit, 24 -26 September 2009.

viii) Received travel grant from CSIR and IIT Delhi for attending ISES "Solar World Congress", Johannesburg, South Africa, in Oct 2009.

ix) Cleared the **Indian Green Building Council Accredited Professional Examination** on 3rd July 2010. http://www.igbc.in/site/igbc/igbcaplist.jsp

x) **Postdoctoral Fellowship** with a research grant **(EURO 13,450** over two years to buy instruments, attend an international conference, and pay master's students who will work on the project for a short duration**)** from the Belgium Government through the University of Liege to carry out independent research work.

xi) **Got travel grant** from **Regional Forum on Climate Change (RFCC): Low Carbon and Climate Resilient Societies** to attend and present research paper as forum presentation, 1-3 July 2015, Asian Institute of Technology, Thailand, Bangkok**.**

xii) **Awarded Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellowship 2015-2017. Attached to the University of Tokyo, Japan.**

xiii) **Studies done during my PhD on buildings in North-East India and the data generated are now included in the ASHRAE thermal comfort standard database Mk II.** This will bring North-East India on a thermal comfort standard map.

xiv) Co-authored a journal paper with 63 leading researchers, "**Development of the ASHRAE Global Thermal Comfort Database II**, Building and Environment (2018); 142C: 502-512", and received the **best paper award from the Building and Environment journal**.

xv) **Cleared IGBC Accredited Faculty examination** and completed "The Indian Green Building Council (IGBC)", a faculty training program conducted from 17th to 28th July 2023.

xvi) 2nd Prize winner for the Poster titled " Nadarajah P D., **Singh M. K.**, **Decarbonizing housing for net zero energy in India's present and future climates"** in the International Symposium on Clean Air, Water, Energy and Circular Economy organized by the ASHRAE India Chapter on 16th September 2024, at Development Alternatives, Qutab Institutional Area, New Delhi.

xvii) Received the **best paper award** in the international conference for the manuscript "Nadarajah P. D., **Singh M K.,** Mahapatra S., **Data-Driven Bioclimatic Zoning in Sri Lanka: PCA and Clustering Analysis.,** SLIIT-3rd International Conference on Engineering and Technology" 22nd to 25th July 2024, Malabe, Colombo, Sri Lanka.

xviii) ScholarGPS(https://scholargps.com/certificates?id=40997634287923) reported that I have been awarded 2024 Highly Ranked Scholar status based on my accomplishments over the totality of my career (lifetime) and/or over the prior five-year period.

My significant contributions to the research area

i) Bioclimatic Classification of North-East India.

ii) Thermal performance and evaluation of comfort temperature in vernacular residential buildings

iii) Establishing that the comfort temperature range varies in the same season of different climatic zones as well as different seasons of the same climatic zone.

iv) Adaptive thermal comfort model for North-East India.

v) Characterizing residential building stock of Liege city based on typology, different age categories, Energy use, type of heating system, and energy efficiency.

vi) Thermal comfort assessment study in pre-1945 constructed residential buildings.

vii) Data collected in the above studies is now part of the Latest **ASHRAE thermal comfort standard database Mk II**. This has brought North-East India to a thermal comfort standard map.

viii) Co-authored a journal paper with 63 leading researchers on the latest **ASHRAE-55 thermal comfort standard database Mk II, entitled "Development of the ASHRAE Global Thermal Comfort Database II, Building and Environment (2018); 142©: 502-512" received the best paper award from the Building and Environment journal**.

ix) We are now working on defining thermal comfort parameters (IEQ) in the offices in northeast India.

x) **Bioclimatic Classification of Sri Lanka**. Co-authored the paper along with my PhD student, Pravin Diliban Nadarajah, in 2024.

Research Grants

S. No.	Title, Value, and Role	Year/ Funding Agency	Status
1	Title: A research proposal developed by me in a consortium got a project grant from ENERGIA, Netherlands to work on Energy Sector Reforms in India. Its total value is **4,50,000 British Pounds**.	Year: 2014-2015 ENERGIA International	**Successful and got the grant**
2	Title: Study to understand the thermal performance of a non-air-conditioned hostel room of Shiv Nadar Institution of Eminence. Its total value is **INR 30,000**/-. Role: **PI and Advisor**	Year: 2022-2023 SNIoE call under OUR scheme (Opportunities for Undergraduate Research)	**Successful and got the grant**
3	FIST- PROJECT (Level-B), R & D Infrastructure The total grant value is **₹ 9900000.00 only**. Project Implementation Group 1. Dr. Ghanshyam Pal, Associate Professor 2. Dr. Gopal Das Singhal, Associate Professor 3. Dr. Hitesh Upreti, Assistant Professor 4. Dr. Ellora Padhi, Assistant Professor **5. Dr. Manoj Kumar Singh, Assistant Professor** 6. Dr. Sushant Kumar Padhi, Assistant Professor	Year: 2023-2028 Department of Science and Technology, Government of India Grant Number: SR/FST/ET-I/2022/1065	**Successfully secured the grant** for the Department of Civil Engineering, Shiv Nadar Institution of Eminence, Deemed to be University.
4	Title: Numerical Investigation on Thermal Performance Characteristics of School Courtyards in Hot and Humid Climate Its total value is **Malaysian Ringgit 158,739**/-. **PI:** Dr. Sheikh Ahmad Zaki Bin Shaikh Salim **Co-PI/Collaborative Researcher** **Dr. Manoj Kumar Singh** Prof. Hom Bahadur Rijal Dr. Ahmad Faiz Mohammad Dr. Ng Wai Tuck	Year: 1st Oct 2023- 30th Sept 2026 Fundamental Research Grant Scheme (FRGS), Ministry of Higher Education, Government of Malaysia	**Successful and got the grant**
5	Title: Study to Enhance Thermal Comfort of a Non-Airconditioned Hostel Room of Shiv Nadar Institution of Eminence. Its total value is **INR 30,000**/-. Role: **PI and Advisor**	Year: 2023-2024 SNIoE call under OUR scheme (Opportunities for Undergraduate Research)	**Successful and got the grant**
6	Title: - **Optimizing Indoor Environmental Quality in Tropical Climate School Classrooms: Human-centred Design and Hybrid Cooling Strategies for a Conducive Learning Environment.** Total Value: **₹ 2,69,50,000.00 (RM 1.4 million)** **PI:** Dr. Sheikh Ahmad Zaki Bin Shaikh Salim **Co-PI/Collaborative Researcher** **Dr. Manoj Kumar Singh** Ts. Dr. Mohd Fitri bin Mohd Yakub Dr Azizul Bin Azizan Dr Leng Pau Chung	Year: 2024-2027 Research Proposal Application for a Research Grant Universiti Teknologi Malaysia 2024	**Successful and got the grant**

	Dr. Mohd Firdaus bin Mohd Taib Dr. Amalina binti Ibrahim Ts. Dr. Doris Toe Hooi Chyee PN Sohaila Binti Safie		
7	Title: - A Pathway for Net Zero Building Design in Jaipur City Total Value: **₹ 73,48,000.00** **Indian Side** **PI:** Dr. Nand Kumar **Co-PI** **Dr. Manoj Kumar Singh** Dr. Rohit Bhakar Dr. Ravita Lamba Dr. Kedar Mehta Dr. Jørn Toftum	Year: 2025-2027 Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Ministry of Housing and Urban Affairs, Government of India	**Successful and got the grant**
8	Title: - ADAPT-HOME: Climate proofing of Indian Homes to Future Climates: Decarbonization Through Low Energy solutions and Net-Zero Strategies Total Value: **₹ 2,00,00,000.00** **PI: Dr. Manoj Kumar Singh**	Year: 2027-2029 2026 Tata Transformation Prize, TATA Trust	**Submitted** **1st June 2026**
9	Title: - Estimating Decarbonization and True Net Zero Potential of the Building Sector in India Following the Dynamic Zone Framework Total Value: **₹ 25,00,000.00** **PI: Dr. Manoj Kumar Singh**	Year: 2026-2030 ARG-MATRICS, ANRF, Government of India	**Submitted** **10th June 2026**
10	Title: - LLM-Agent Orchestrated Digital Twin Platform for Real-Time Thermal Comfort Optimization and Operational Net-Zero Compliance in Sustainable Buildings **Pre-Proposal Submitted** **PI:** Dr. Nand Kumar, MNIT Jaipur **Co-PI** Dr. Virendra Singh, IIT Bombay **Dr. Manoj Kumar Singh, SNIoE** Dr. Kedar Mehta, THD, Germany Dr. Ravita Lamba, IIT Roorkee Dr. Kuldeep Singh, MNIT Jaipur Dr. Sundeep Kumar, MNIT Jaipur	Year: 2026-2029 ANRF-ARG, Government of India	**Submitted** **10th June 2026**
11	Title: - Reliability Economics: A Fundamental Theory of Affordability and Reliability for Future Electricity Systems **Pre-Proposal Submitted** PI: Dr. Rajib Kumar Mishra, IRADe, New Delhi **Co-PI** **Dr. Manoj Kumar Singh, SNIoE** Honorary Investigator Mr. Mohit Kumar Gupta	Year: 2026-2029 ANRF-ARG, Government of India	**Submitted** **10th June 2026**
12	Title: - Development of a Robust Non-Intrusive Load Monitoring (NILM) Framework for Indian Grid Conditions under Behind the Meter PV and Electric Vehicle Interference Total Value: **₹ 99,99,600.00** **PI:** Dr. Nand Kumar, MNIT Jaipur **Co-PI** Prof. Dr. Rajesh Kumar, MNIT Jaipur Prof. Dr. Rohit Bhakar, MNIT Jaipur	Year: 2026-2029 **BRICS 2026**,	**Submitted** **16th June 2026**

	Dr. Prerna Jain, MNIT Jaipur Dr. Sundeep Kumar, MNIT Jaipur Dr. Sanjay Kumar Parida, IIT Patna Dr. Ravita Lamba, IIT Roorkee Dr. Virendra Singh, IIT Bombay **Dr. Manoj Kumar Singh, SNIoE**		

Local Chapters/Society/committee member

1. Opened ASHRAE local student Chapter at Shiv Nadar Institution of Eminence and attached to it as Student Branch Co-Advisor.
2. ASHRAE TC 7.6 Member and Handbook Subcommittee member, AP (2027) Chapters 37 & 42. Review completed.
3. ASHRAE Technical Committee 4.10, Indoor Environmental Modelling member.
4. ASHRAE Project team member: Project 8 - Whole-Life Carbon Gap Analysis and Tool Development.
5. Listed as one of the three experts by ASHRAE request for proposal on Whole-Life Carbon Gap Analysis vide number "ASHRAE RFP_1988_SP". Sponsoring Committee: Centre of Excellence for Building Decarbonization.

Existing Research Instruments

The following table lists the instruments I purchased to carry out my proposed JSPS research. Presently, my collaborators in India are using these instruments to carry out comfort surveys. I brought the instruments for the research work proposed during the JSPS postdoctoral fellowship, using the JSPS research fund, which was handed over to me upon completion of the work. These instruments are costly, compact, sensitive, and meet international standard requirements of calibration. I also purchased a single license for SPSS to carry out data analysis. I wish to note that I can start the research immediately upon joining **the position**.

S. No.	Name of Instrument	Specifications	Quantity
1	Globe thermometer	Globe thermometer 0602 0743	3
2	Thermal Anemometer	TESTO 405 - Thermal Anemometer	3
3	Temp, RH, CO_2 Sensor	TR-76Ui CO2/Temperature/Humidity Data Logger	3
4	HOBO U12-012	HOBO Temperature/Relative Humidity /Light / External Data Logger	16
5	HOBO MX1104	HOBO Temperature/Relative Humidity /Light / External Data Logger	3
6	HOBO Software	HOBO ware Pro Mac/Win Software	1
7	USB Cable to read out data	HOBO	3
8	Fluke 61 Infrared thermometer	Fluke	3
9	Sensitive Weighing Machine	Sweat Measurement	3
10	Weighing machine	Subjects weight	3
11	Lux meter	To measure the illumination level	3
12	Testo-400 Thermal comfort kit	To measure IEQ parameters	1

Publications:

Books edited.

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34. Nadarajah P. D., **Singh M K.,** Mahapatra S., **Data-Driven Bioclimatic Zoning in Sri Lanka: PCA and Clustering Analysis.,** SLIIT-3rd International Conference on Engineering and Technology, 22nd to 25th July 2024, Malabe, Colombo, Sri Lanka. Published in Proceedings, Page No. 40-51. https://doi.org/10.54389/ROBV9147

35. Firman N. S., Zaki S. A., Tuck Ng. W., **Singh M. K.,** Rijal, H. B., **Field Study on Thermal Comfort and CO_2 Concentration in School Classrooms in Hot-Humid Climate, Malaysia.,** International Building Physics Conference (IBPC 2024), Toronto Metropolitan University, 25 - 27 July 2024, Toronto, Canada. In: Berardi, U. (eds) Multiphysics and Multiscale Building Physics. IABP 2024. Lecture Notes in Civil Engineering, vol 555. Springer, Singapore. Page No. 120-127. https://doi.org/10.1007/978-981-97-8317-5_19 *(Scopus indexed)*

36. Firman N. S., Zaki S. A., Tuck Ng. W., **Singh M. K., Assessment of Overheating Risk in School Classrooms of a Hot-Humid Climate.,** Proceedings of the International Exchange and Innovation Conference on Engineering & Sciences (IEICES 2024), 10, pp. 838-844, October 17-18, 2024, Kyushu University, Fukuoka City, Japan. *https://doi.org/10.5109/7323358 (Scopus indexed)*

37. Ilmiawan F. A., Zaki S. A., **Singh M. K.,** Rijal, H. B., **Field Measurement on Skin Temperature and Thermal Comfort of the Human Body with Various Wind Directions.,** Proceedings of the International Exchange and Innovation Conference on Engineering & Sciences (IEICES 2024), 10, pp. 1152-1157, October 17-18, 2024, Kyushu University, Fukuoka City, Japan. *https://doi.org/10.5109/7323403 (Scopus indexed)*

38. Firman N. S., Zaki S. A., Tuck Ng. W., **Singh M. K.,** Rijal, H. B., **Impact of Building Orientation and Height on Thermal Conditions in Malaysian School Classrooms: A Field Study in Kuala Lumpur.**, Healthy Buildings-2025, 18- 21st August 2025, Engineering Staff College of India, Hyderabad, India.

39. **Singh M. K.,** Nadarajah P D., Ooka R., Rijal H. B., Zaki S. A., **Adaptive Thermal Comfort in the Naturally Ventilated Offices of Cold and Cloudy Climate of North-East India.**, ISHVAC 2025, 14th International Symposium on HVAC2025, E3S Web of Conferences 689, 06005 (2026), November 29 to December 2, 2025, Institute of Industrial Science (IIS), The University of Tokyo 4-6-1 Komaba, Meguro-ku, Tokyo, Japan. https://doi.org/10.1051/e3sconf/202668906005

40. Rao G., Zaki S. A., Singh M. K., Rijal, H. B., Effects of Aromatic Scents on Subjective **Evaluation under Different Indoor Temperatures in a Tropical Office Environment,** The 19th International Conference of the International Society of Indoor Air Quality & Climate (Indoor Air 2026), 14 - 18 June 2026, Singapore Management University, SMU Yong Pung How School of Law, 55 Armenian St, Singapore.

Conference Manuscripts under preparation/submitted

1. Nadarajah P D., Singh M. K., Kumar A., Gaur A., Crawley D. B., **Improving Bioclimatic Classification of India: A Dynamic Approach Across Multiple Climate Scenarios,** 12th International Conference on Indoor Air Quality, Ventilation & Energy Conservation in Buildings., May 18–22, 2026, Los Angeles, California, USA. *Abstract accepted for oral presentation*.
2. Rao N., Gousineyah., Salim S., Zaki S. A., **Singh M. K.,** Rijal, H. B., **Investigating Thermal Comfort And Psychological Effects of Essential Oils in Office Environments in a Tropical Climate,** 46th AIVC - 14th TightVent - 12th Venticool Conference Innovations in Smart Ventilation and IEQ for Resilient and Adaptive Buildings September 30 - October 1, 2026, Songdo International District, Incheon, Republic of Korea. *An extended Abstract was submitted for oral presentation*.
3. Firman N. S., Zaki S. A., **Singh M. K.,** Rijal, H. B., **Investigation on classrooms ventilation and thermal comfort in naturally ventilated secondary schools in Malaysia,** 18th RoomVent 2026 Conference, September 15-18, 2026, Faculty of Civil Engineering, Czech Technical University in Prague, Thakurova 7, Prague 6, Czech Republic. *Abstract submitted for oral presentation*.
4. Faizal M., Gousineyah., Zaki S. A., **Singh M. K.,** Rijal, H. B., **Thermal Comfort Perception After Waking: Relationship with Bedroom Air Temperature During Sleep,** 46th AIVC - 14th TightVent - 12th Venticool Conference Innovations in Smart Ventilation and IEQ for Resilient and Adaptive Buildings, September 30 - October 1, 2026, Songdo International District, Incheon, Republic of Korea. *An extended Abstract was submitted for oral presentation*.
5. Faizal M., Gousineyah., Zaki S. A., **Singh M. K.,** Rijal, H. B., **Impact of Solar Radiation on Indoor Thermal Performance of School Classrooms with Different Roof Insulation Strategies in a Tropical Climate,** 7th International Conference on Countermeasures to Urban Heat Islands (IC2UHI 2026), September 22 – 25, 2026, Nanjing, China. *Accepted for oral presentation*.
6. Firman N. S., Zaki S. A., Tuck Ng. W., **Singh M. K.,** Rijal, H. B., **Students' thermal comfort perception and classroom ventilation performance in tropical Malaysian secondary schools,** The 19th International Conference of the International Society of Indoor Air Quality & Climate (Indoor Air 2026), 14 - 18 June 2026, Singapore Management University, SMU Yong Pung How School of Law, 55 Armenian St, Singapore. *An extended Abstract was submitted for oral presentation*.

Book Chapters under preparation/submitted

1. Gupta L., Dixit J., **Singh M. K., Assessment of land use land cover change and its impact on land surface temperature and flood inundation for urban areas of Assam, India.,** "Navigating the Climate Crisis: Perspectives and Actions from the Global South for Mitigation & Adaptation", Chintan Research Foundation (CRF), C-14, Second Floor, Block C, Lajpat Nagar III, Lajpat Nagar, New Delhi, Delhi 110024. *Full Chapter submitted*.

National Seminar

1. **Singh M. K.,** Mahapatra S., Atreya S. K., **Climate-responsive Building Design in North-East India,** presented a paper in National Seminar on "Emerging trends in Energy Efficiency Opportunities and Challenges", 17 – 18 Oct 2008, Guwahati, Assam, and published in proceedings, page 13 – 25.

2. Given a presentation on building envelope design of the vernacular architecture of northeast India, as **an expert on building envelope design** in a workshop series organized by SEEM, Kerala, and sponsored by MNRE to spread awareness on ECBC code, at Agartala, Tripura, on 24 – 25 July 2009.

National Conference

1. **Singh M. K.,** Mahapatra S., Atreya S. K., **Green Building Design: A step towards sustainable habitat.** Renewable Energy and Sustainable Development. **Pp 257-268,** Editors: R Kataki, A C Borah, EBH Publishers, Guwahati, 2012. ISBN: 978-93-80261-78-2.

Other Publication

1. Published interview-based story entitled **"Abode, perhaps the northeast way!"** in Live Mint, Hindustan Times, covering a story based on my research on the traditional architecture of Northeast India on 18th June 2009. This story was covered by Simantik Dowerah, an Assistant editor with the same newspaper. Find the article at the following link: *http://www.livemint.com/2009/06/18151801/Abode-perhaps-the-northeast-w.html*

Invited Lectures

1. Delivered a lecture at the Centre for Energy, MANIT Bhopal, on the topic "Thermal comfort and Bioclimatic Building Design" on 5th March 2014.

2. Resource Person and Speaker at Workshop on "**Green Building Science"** – Zakir Hussain College of Engineering &Technology, Aligarh Muslim University, Aligarh, India on April 17th & 18th, 2014.

3. Gave an invited presentation in "Climate Change and Urban Development" in TROPMET 2015, 15-18 Feb 2015, Panjab University, Chandigarh, India.

4. Delivered a lecture on the topic "Principles of Thermal Comfort and its Importance" on 29th January 2016 at Wakasa Senior High School, Obama City, Fukui Prefecture, Japan, under the science dialogue program, an initiative by JSPS, Government of Japan, to motivate high school students towards science. This lecture was sponsored by JSPS, Government of Japan.

5. Delivered a lecture on the topic "Principles of Thermal Comfort and its Importance" on 10th September 2016, Jr. and Sr. High School at Komaba, University of Tsukuba, 4-7-1 Ikejiri, Setagaya City, Tokyo 154-0001, under the science dialogue program, an initiative by JSPS, Government of Japan, to motivate high school students towards science. This lecture was sponsored by JSPS, Government of Japan.

6. Delivered a lecture at the Architectural Institute of Japan on the topic "Thermal comfort in residential buildings of North-East India" on 6th October 2016.

7. Delivered a Lecture at the Centre of Energy, IIT Guwahati, on the topic "Thermal comfort in the buildings of North-East India" on 30th May 2017.

8. Delivered an invited presentation as a resource person for the ATAL workshop on "Energy and Audit" at North-Eastern Hill University, Shillong, Meghalaya, on 15th October 2019.

9. Delivered an invited presentation at the graduate students meeting on 2nd December 2019 at the Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia.

10. Delivered an invited lecture on the topic **"Thermal Comfort and Climate Responsive Buildings"** as a resource person for the Training program "Role of Renewable Energy Sources in Indian Energy Security" organized by the Department of Mechanical, Production & Industrial and Automobile Engineering, Delhi Technological University, New Delhi, India, on 8th July 2021.

11. Delivered an invited lecture on the topic **"Thermal comfort in Built-Environment"**, Organized by Star College Scheme, DBT, Govt. of India & Department of Physics, Anandaram Dhekial Phookan College, Nagaon, Assam, India, on 15th Nov 2021.

12. Delivered an invited lecture on the topic **"Thermal comfort in Built-Environment"**, Under the Alumni Interaction Initiative, Organized by the Department of Energy, Tezpur University, Napaam, Sonitpur, Assam, India, on 22nd Nov 2021.

13. Delivered an invited Key lecture on the topic "**Thermal comfort in Built-Environment: New Direction and Dimensions"** at the International Conference "Frontiers of Energy Management and Technology Innovation (FEMTI), Pisa, organized by the University of Pisa, Italy, on 16th December 2021.

14. Delivered an invited lecture on the topic **"Thermal comfort in Built-Environment: New Direction and Dimensions"**, as a resource person for the Training program "Alternative Energy Sources for Sustainable Development" organized by the Department of Mechanical, Production & Industrial and Automobile Engineering, Delhi Technological University, New Delhi, India, on 6th January 2022.

15. Delivered a keynote lecture on the topic **"Energy Efficient Buildings with Net Zero Carbon Emission"**, at the INSORE summit, an initiative of NERERL & The Republic of Croatia. INSORE was held in Assam Administrative Staff College, Khanapara, Guwahati, Assam, from 22nd July to 24th July 2023. https://www.nererl.com/insore-india-chapter

16. Delivered a lecture on **"Thermal comfort in the Indian Himalayan Region architecture"** in a workshop titled "Advancement in Passive Solar Heated Building Design and Performance Assessment" at the National Institute of Himalayan Environment in Collaboration with DIT University Dehradun on 16th January 2024.

17. Delivered a lecture on **"Traditional Residential and Office Buildings of North-East India"** in a two-day workshop titled "Vikashit Bharat 2047 Abhiyan Aatmnirbhar North-East" at the National Institute of Technology Meghalaya, Cherrapunji, Meghalaya, on 14th -15th November 2024.

18. Delivered a lecture on the **"**Efficient Energy Use course**"** for master students, Faculty of Civil and Geodetic Engineering, Chair of Buildings and Constructional Complexes, University of Ljubljana, Slovenia, on 14th January 2025.

19. Invited as an expert to deliver a lecture on the topic **"Linking adaptive thermal comfort and building thermal performance"** in One-week Online Short-Term Course (e-STC) On Flow and Energy: Computational Fluid Dynamics for Sustainable Solutions, March 08th-12th, 2025, at the Department of Mechanical Engineering Dr B R Ambedkar National Institute of Technology Jalandhar - 144008, Punjab, India.

20. Invited as an expert to deliver a lecture on the topic **"Linking adaptive thermal comfort and building thermal performance"** on 30th June 2025, at the Department of Civil Engineering, at NIT Meghalaya, Cherrapunjee, Meghalaya, India.

21. Delivered an invited lecture on the **"Bioclimatism and thermal comfort"** to PhD and master students, Faculty of Environmental Studies, Dept. of Restoration Ecology & Built Environment, Tokyo City University Graduate School of Environmental and Information Studies, 3-3-1 Ushikubo-nishi, Tsuzuki-ku, Yokohama, Tokyo, 224-8551 Japan, on 3rd December 2025.

22. Invited as an expert to deliver a lecture on the topic **"Climate Adaptability of Buildings: A way to Future-Proof Buildings in the context of global warming"** in the **International workshop on "Decarbonizing the Cities: Pathway from Building to Net-Zero Urban Environments**", 26th Feb - 2nd March 2026, at the AMRUT Centre of Urban Planning for Capacity Building, Department of Architecture and Planning, Malviya National Institute of Technology Jaipur - 302017, Rajasthan, India.

23. Invited as an expert to deliver a lecture on the topic **"Linking Adaptive Thermal Comfort And Building Thermal Performance"** in the **International workshop on "Decarbonizing the Cities: Pathway from Building to Net-Zero Urban Environments**", 26th Feb - 2nd March 2026, at the AMRUT Centre of Urban Planning for Capacity Building, Department of Architecture and Planning, Malviya National Institute of Technology Jaipur - 302017, Rajasthan, India.

Invited Lecture Organized

1. Organized an expert talk on the topic **"Technologies to Mitigate Climate Change"**, delivered by **Prof. Pinakeswar Mahanta, Director, NIT Arunachal Pradesh**, on 7th July 2022.
2. Organized an expert talk on the topic **"Introduction to ASHRAE (The American Society of Heating, Refrigerating and Air-Conditioning Engineers) and the benefits of establishing a student chapter at SNIoE"**, delivered by **Dr. Rajinder Singh, Associate Professor, Mechanical Engineering Department, Pusa Institute of Technology, New Delhi** & Chair, Refrigeration and Student Activities, ASHRAE India Chapter, on 9th February 2023.
3. Organized an expert talk on the topic **"Passive Climate Adaptability: A Way to Future-Proof Buildings Against the Challenges of Global Warming"**, delivered by **Dr. Mitja Kosir, Associate Professor, Head and Chair of Buildings and Constructional Complexes, Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia**, on 2nd November 2023.
4. Organized an expert talk in Coordination with Dr. Rakesh Ganguly, on the topic **"Journal Publication Seminar: Your Manuscript Destiny"**, delivered by **Prof. Gustaf Olsson, Industrial Automation, Lund University, S-22100 Lund, Sweden**, on 30th July 2025.

Work experience:

Teaching experience

1) Worked as a lecturer in the **Department of Physics at Jagiroad College** from 4th Oct 2004 to 28th Feb 2005. I was assigned to teach undergraduate students.

Courses Taught	Remarks
1) Solid-state physics	Teaching UG students and taking laboratory
2) Electronics	
3) Physics laboratory	

1) I was a teaching assistant during Ph.D. at **IIT Delhi**. I taught master's students for four semesters.

Courses Taught	Remarks
1) Design Methods	PG Course. 4 semesters: 2008-2009 and 2009-2010, as Teaching Assistant during Ph.D. at IIT Delhi.
2) Advanced Materials and Finishes	
3) Invited Seminar	
4) Design Studio	

2) Subjects taught at PG level as guest Lecturer at **Faculty of Civil and Geodetic Engineering**, **University of Ljubljana, Slovenia**.

Courses Taught	Remarks
1) Living Environment	PG Course. Teaching, Tutorial, Conducting experiments and supervising master's students.
2) Energy-Efficient Use in Buildings	

3) Subjects taught at PG level for M.Tech. program "**Renewable Energy and Energy Management (REEM)**, and Electrical Engineering, Undergraduate program as guest Lecturer at **National Institute of Technology Arunachal Pradesh, India.**

Courses Taught	Remarks
1) Basic Thermodynamics	PG Course. Teaching, Tutorial, Conducting experiments and supervising master's students
2) Energy Economics and Planning	PG Course. Teaching, Tutorial, and supervising master's students
3) Power Generation Economics	PG Course. Teaching, Tutorial, and supervising master's students
4) Electromagnetic Field theory	UG, Electrical Engineering; Teaching, Tutorial, and supervising

4) Subjects taught at UG/PG level at The **Department of Civil Engineering, SNIoE, Dadri**, Greater Noida, UP-201314, India.

Courses Taught	Remarks	Semester/Year
1) CED-307: Estimation, Costing and Project Management	UG Course. Teaching, Tutorial and advising	Monsoon semester 2022
2) DES-211: Creativity and Concept in Design	UG Course. Teaching and advising	Monsoon Semester 2022
3) DES-211: Creativity and Concept in Design	UG Course. Teaching and advising	Spring Semester 2023
4) CED-687: Building Energy Modeling	PG Course. Teaching, Tutorial, and supervising master's students	Spring Semester 2023
5) CED-307: Estimation, Costing and Project Management	UG Course. Teaching, Tutorial and advising	Monsoon semester 2023
6) DES-211: Creativity and Concept in Design	UG Course. Teaching and advising	Monsoon semester 2023
7) CED-687: Building Energy Modeling	PG Course. Teaching, Tutorial, and supervising master's students	Monsoon Semester 2023
8) CED-218: Risk and Reliability Analysis	UG Course. Teaching and advising	Spring Semester 2024
9) CED: 891 Research Methodology	PG Course, Teaching and advising	Spring semester 2024
10) CED-685: Sustainable Buildings	UG/PG Course, Teaching and advising	Monsoon Semester 2024
11) CED 420: Building Physics	UG Course. Teaching and advising	Spring Semester 2025
12) CED-218: Risk and Reliability Analysis	UG Course. Teaching and advising	Spring Semester 2025
13) CED-218: CED 425-Climate Change and its adaptation & mitigation	UG Course. Teaching and advising	Monsoon Semester 2025
14) CED-218: Risk and Reliability Analysis	UG Course. Teaching and advising	Spring Semester 2026

Course proposed under GIAN (Global Initiative of Academic Networks)

S. No.	Particulars	Experts	Status
1	Title: Designing buildings and making them Future Climates ready: A sustainable approach Role: Course Coordinator Course Code: 2800464 Duration: 5 days Mode: In person Budget: USD 8000.00	Prof. Mitja Kosir, University of Ljubljana, Slovenia, EU	**Applied On 25th Sept 2025** **Under evaluation**

Achievements and Participation in ASHRAE India activities as Student Coordinator

1) Participated in the 5th Edition Dr. Prem Jain Memorial Cricket Tournament on 27th January 2024, Jamia Millia Islamia Sports Complex, Okhla, New Delhi.

2) **Runners-up** in the 4th Edition N C Gupta Memorial Football Tournament held on 14th September 2024, New Delhi.

3) **2nd Prize winner** for the Poster titled " Nadarajah P D., Singh M. K., Decarbonizing housing for net zero energy in India's present and future climates" in the International Symposium on Clean Air, Water, Energy and Circular Economy organized by the ASHRAE India Chapter on 16th September 2024, at Development Alternatives, Qutab Institutional Area, New Delhi.

4) Attend the ASHRAE DL Lecture by Dr Chandra Shekhar, Vice President of ASHRAE and Professor at the National University of Singapore, on the topic Emerging HVAC Technologies for Energy-Efficient Healthy Buildings in Hot & Humid Climates, at India Habitat Centre, Magnolia Hall, New Delhi, on 4th January 2025.

Research Experience

1) Worked as a Project Associate in an NGO, NB Institute of Rural Technology, from July 2005 to November 2005.

2) Worked at TERI as a Project Assistant in the Biomass-based Gasifier Project in December 2005.

3) I completed my PhD from the Indian Institute of Technology Delhi in the field of **"Bioclimatic Built-Environment Design (Jan 2006 to July 2011).**

4) **Worked as a Postdoctoral Fellow** with a research grant **(EURO 13,450** over two years to buy instruments, attend an international conference and to pay a master's student who will work on the project for a short duration**)** from the Government of Belgium through the University of Liege to carry out independent research work **(Sept 2011 to Nov 2013)**.

5) Worked as a **Senior Research Analyst and Modelling Head, IRADe,** New Delhi, India **(Jan 2014 to 9th Oct 2015).**

6) Joined the Institute of Industrial Science (IIS), The University of Tokyo, as a **JSPS Postdoctoral Fellow from 25th November 2015.**

7) Worked at the **Joint International Research Laboratory of Green Buildings and Built Environments (Ministry of Education),** Chongqing University, China, as a visiting scholar (28th November to 27th December 2018).

8) Joined as **Visiting Lecturer, Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia,** on 7th Nov 2019.

15) I worked as a subject expert at the National Institute of Technology, Arunachal Pradesh, from January 2021 till May 2022.

10) Presently working as Assistant Professor, Department of Civil Engineering, Shiv Nadar Institution of Eminence, Greater Noida, Uttar Pradesh, India.

Workshop/ Seminar/ International Conference Attended:

1) Attended Training cum Demonstration Program on "**Bamboo Based Biomass Gasifier**", by the Department of Energy, Tezpur University, in collaboration with CGPL, IISc. Bangalore. Sponsored by National Mission on Bamboo Application. On 20 Nov 2004 at Tezpur University.

2) Attended Training cum Workshop on "**Integrated Rural Energy Planning**", by the Department of Energy, Tezpur University, in collaboration with Meghalaya Non-Conventional and Rural Energy Development Agency, Shillong. Sponsored by MNRE, Government of India, New Delhi, from 28th to 30th January 2005 at Tezpur University.

3) Attended and presented papers in the International seminar "**Prithvi 2005**" held in Thiruvananthapuram, Kerala, India from 20th – 25th Feb 2005 under the theme **"Non-Conventional Energy"** and **"Eco-Friendly Habitat" organized by** Swadeshi Science Movement, Kerala.

4) Assisted Prof S. K Atreya in running a design school (**a summer design school to develop awareness among the faculty of engineering colleges about modern design practices and approaches**) from 6th June 2006 to 17th June 2006.

5) Attended a one-day workshop on **"Energy Security and Climate Change"** at CES, IIT Delhi, on October 10, 2007.

6) Attended one-day conference **"India R&D 2008: NANOTECHNOLOGY – The Science of the Future"** on 5th September 2008 at FICCI, New Delhi.

7) Attended and presented a paper at the **3rd International Solar Energy Society Conference – Asia Pacific Region (ISES-AP 08)**, 25 – 28 November 2008, Sydney Convention & Exhibition Centre, Australia.

8) Attended and presented a paper at the International Conference **"Renewable Energy Asia 2008"**, December 11 – 13, IIT Delhi. Page 1110 – 1116.

9) Attended **1st Habitat Summit**, *An Indian Habitat Centre and Urban Habitat Forum Initiative* from 24th to 26th September 2009 at Indian Habitat Centre, New Delhi.

10) Attended and presented a paper at **ISES Solar World Congress**, Johannesburg, 11-14 October 2009, South Africa.

11) Attended national conference **"GRIHA National Conference and Exhibition on Green Building Materials and Technology"** on 4th January 2010 at the Stein Auditorium, India Habitat Centre, New Delhi.

12) Attended **Solar Energy Conclave 2010** on 11th January 2010 in Vigyan Bhawan, New Delhi.

13) Attended "**National Conference on Green Design: Buildings and Habitats"** on 7-8th January 2011 at the Stein Auditorium, India Habitat Centre, New Delhi.

14) Attended and presented a paper at the National Conference on "Renewable Energy for Development of Underdeveloped Areas with Particular Reference to North-East India", 23rd– 25th March 2010, Tezpur University, Tezpur, Assam.

15) Attended and presented a paper at **ISES Solar World Congress**, Kassel, 28 August – 02 September 2011, Germany.

16) Attended **TRNSYS days 2012**, 5-7 September 2012, 3-day TRNSYS training at the University of Liege, Arlon campus, Belgium.

17) Attended and presented a paper in CISBAT 2013, EPFL, Lausanne, 4-6 September 2013, Switzerland.

18) Attended and presented a paper at the 8th SDEWES Conference 2013, Dubrovnik, 22 – 27th September 2013, Croatia.

19) Attended and gave an invited presentation on "Climate Change and Urban Development" in TROPMET 2015, 15-18 Feb 2015, Panjab University, Chandigarh.

20) Attended training program on **ANSWER-TIMES (**The Integrated MARKAL-EFOM System) from 22nd July to 10th August 2015.

21) Attended SCA-16 Conference (Science Council of Asia), and presented a paper on May 30-June 1, 2016, Colombo, Sri Lanka.

22) Attended "The Society of Heating, Air-Conditioning and Sanitary Engineers" of Japan (SHASE), Annual Conference and presented a paper on September 14-16, Kagoshima, Japan.

23) Attended the International conference "ICHES-2016" at Nagoya University and presented a paper, October 29 - November 2, 2016, in Nagoya, Japan.

24) Attended the International conference "Healthy Buildings Asia-2017" at the College of Medicine, National Cheng Kung University and presented a paper from September 2 to 5, 2017, in Tainan, Taiwan.

26) Attended "The Society of Heating, Air-Conditioning and Sanitary Engineers" of Japan (SHASE) Annual Conference and presented a paper on September 13-15, 2017, in Kochi, Japan.

27) Attended "IAQVEC-2023", 11th International Conference on Indoor Air Quality, Ventilation & Energy Conservation in Buildings, May 20-23, 2023, Tokyo, Japan.

28) Completed "The Indian Green Building Council (IGBC)", Faculty training program conducted from 17th to 28th July 2023.

28) Attended "CATE-2023- Comfort at Extremes", an International conference on December 13-15, 2023, at CEPT University, Ahmedabad, India.

29) Attended "16th GRIHA Summit 2024- Accelerating Climate Action in the Built Environment", an International conference on December 4-5, 2024, at India Habitat Centre, Lodhi Road, New Delhi, India.

30) Attended "The 14th International Symposium on Heating, Ventilation, and Air Conditioning (ISHVAC 2025) from November 29 to December 2, 2025.", an International conference from November 29 to December 2, 2025, Tokyo, Japan.

Present status: Working as Assistant Professor, Department of Civil Engineering, Shiv Nadar Institute of Eminence, Tehsil Dadri, Greater Noida-201314, UP, India.

Membership:

1) Institute of Physics, UK, (Past Member)
2) ASHRAE Member,
3) ISES Member,
4) Young ISES Member,
5) Life member of the Solar Energy Society of India (SESI)
6) Member of the Indoor Air Quality, Ventilation, and Energy Conservation in Buildings (IAQVEC) association
7) Indian Green Building Council Accredited Faculty,
8) International Building Performance Simulation Association-India Member

Hobbies: Drawing portraits, Video Editing, Social work, Photography.

Reviewer to International Journals:

1) Renewable & Sustainable Energy Reviews
2) Energy and Buildings
3) Building and Environment
4) Frontiers of Architectural Research
5) Landscape and Urban Planning
6) IEEE Sensors Journal
7) Journal of Architectural Engineering Technology
8) Sustainable Energy Technologies and Assessments
9) Indian Journal of Pure & Applied Physics
10) Energy Efficiency, Springer
11) Sustainable Cities and Society.
12) Journal of Building Engineering

I have reviewed more than 200 papers from the journals listed above.

Citation received (Scopus Data):	**3270**
Citation received (Google Scholar):	**4753**
Citations received (Research Gate):	**4100**
Total Impact factor of publications:	**384.7**
h index	**29(Scopus database)** **33(ResearchGate)** **33(Google scholar)**

Abstract of M.Tech. Thesis

Title: "Development of Design Guidelines for Energy Efficient Buildings for North-Eastern Region"

Buildings must be synonymous with comfort because people spend their entire lives in the building, so these must be taken seriously and should be given prime importance. As men spend most of their time in the building, they also try to increase their level of comfort artificially, which is purely dependent on energy consumption. Nowadays, it becomes important, rather unavoidable, to think of a building that has low energy and provides comfort to the people living in it naturally.

In this study, we have classified the whole Northeastern region at a micro level depending upon the climatic conditions in relation to the geography. This provides us with a closer picture in a systematic way. The base of the study is the 30-year data that we have collected from RMC Guwahati. We have also studied the effect of the different physical parameters on comfort conditions. The outcome of this study is used to plot points on Givoni's bioclimatic diagram, which ultimately leads us to the measures we should consider creating comfortable conditions inside the building.

By studying traditional architecture, it has been found that buildings constructed 70 to 100 years ago have several passive features that help control the indoor environment, primarily promoting ventilation, as humidity levels are alarmingly high in this region. In most traditional buildings, it has been observed that locally available materials are used efficiently. Since the locally available material comes from the same climatic zone, it adapts well to the local environment. These factors also influence the economic factor quite a lot. In the end, guidelines are prepared for low-rise residential buildings, as such buildings are very common in the region. To increase the effectiveness of these guidelines, the concepts should be incorporated during the planning of new buildings. Emphasis is placed on the optimal use of locally available materials, as this will ultimately reduce the load on the conventional system, leading to energy savings. Another aspect is that this type of architecture is environmentally friendly as well as retaining comfortable conditions.

Abstract of Ph.D. thesis

Title: "Bioclimatic Design of Built-Environment for North-East India"

Design plays an important role in making buildings comfortable for human beings. Human beings spend most of their time in buildings. So, the built environment must be designed for optimal thermal comfort to support life and its sustainability. It is inherent in human beings to always look for an enhanced level of comfort. This activity leads to an increase in the energy consumption of buildings directly or indirectly. In today's scenario, it becomes important or rather unavoidable to look for building design solutions that provide optimal comfort and consume minimum energy.

This study is carried out in North-East India to study the design of the vernacular building for the climate-oriented features that can be applied to modern architecture and the status of comfort in those buildings. We have classified the Northeastern region of India at a micro-climate level based on the climatic conditions in relation to the geography in three bio-climates (warm and humid, cool and humid and cold and cloudy). This classification provides more specific information about each climatic zone. Bioclimatic charts are developed to estimate the potential passive design strategies for two seasons, summer and winter.

We have studied vernacular architecture and different climatic-oriented features, as well as solar passive features available in vernacular houses of the region, along with their functionality. This study tried to investigate why these traditional structures are still very popular and widely constructed. This study also identifies the functionality of these vernacular architectures, and based on it, three houses (one in each climatic zone) are selected for long-term monitoring. Later in the study, it is found that the functionality of the houses is in harmony with the socio-cultural setup and thus makes the architecture very popular.

In these three selected houses, monitoring work has been carried out in all the seasons of the year, followed by a comfort survey. Based on the data collected, we have done a thermal performance study to find comfort status and to define the range of comfort temperatures. Based on the data, predictive formulae have been developed to predict the indoor thermal environment. It has also been tried to incorporate behavioural factors in developing the mathematical formula. The developed formula is successfully validated with CC > 0.9. When a detailed analysis of the data collected during a comfort survey was done, it was found that PMV (Predicted Mean Vote calculated according to ISO 7730 standard) deviates from AMV (Actual mean vote recorded on 7 points ASHRAE sensation scale) for the same thermal environment. To explain the deviation, a mathematical relation has been developed to evaluate the corrective term called the adaptive coefficient (λ), which has been added to PMV to get cPMV (Corrected Predicted Mean Vote). The value of "λ" may be negative or positive depending on the adaptation level of the occupants.

In the end, simulations of vernacular architecture have been carried out with the objective of designing the indoor environment for optimal human thermal comfort. The model of vernacular buildings generated in TRNSYS provides the indoor temperature variation with fair accuracy as compared to what has been obtained during actual field measurements. Finally, important conclusions are drawn based on the research work, with a discussion on limitations and the future scope of the study.

About Postdoctoral research work at the University of Liege

Title: Study on thermal performance and defining comfort status in ancient residential houses of Liege City

I was a postdoctoral fellow at the Faculty of Applied Sciences, Department of ArGEnCo, LEMA (Local Environment Management and Analysis), the University of Liege, from September 2011 to November 2013. I enjoyed my stay and found all the necessary support from the university and my colleagues in LEMA, which made my life easier, as it was my first long-term stay outside India. To carry out postdoctoral research, I received a research grant (EURO 13,450 over two years) from the Belgian government through the University of Liege to purchase instruments, attend an international conference, and pay master's students who will work on the project for a short duration. To secure this research grant, I developed a research proposal with assistance from Prof Jacques Teller to study the historical building stock built before 1945 and still in use. The Wallonia region has about 800000 ancient houses. Of which, 50% were constructed between 1800-1945. These buildings are low on overall energy efficiency and have a high heating load in winter. Considering the importance of energy efficiency and the economy in the present scenario, the European Commission's directive has set a target to improve the energy efficiency of these buildings and newly constructed ones by 50% compared to the case as usual by 2020. I conducted research on characterizing the residential building stock of the city of Liege based on typology, age categories, Energy use, heating system type, and energy efficiency. I also conducted a thermal performance and thermal comfort assessment of 20 selected buildings by monitoring indoor environments and administering a questionnaire-based comfort survey in 85 houses. Monitoring and thermal comfort surveys were carried out from November 2011 to May 2012. My research provided evidence that occupants in historical buildings feel comfortable with indoor thermal conditions not covered by modern thermal comfort standards, such as ISO 7730 and ASHRAE 55-2013. My research recommended that these historical buildings not be evaluated using modern comfort standards, or that a different set of guidelines be developed for them. I also established links between different renovations and their impact on the built environment in historical houses. All these works led to the publication of research articles in Energy Policy, Energy and Thermal Science Journal, and Energy Journal.

About JSPS Postdoctoral Fellow at The University of Tokyo

The duration of my JSPS postdoctoral fellowship (Japan Society for Promotion of Sciences) at the University of Tokyo was from November 2015 to November 2017. As a JSPS postdoctoral fellow, I carried out an adaptive thermal comfort study in typical office buildings in three climatic zones (warm and humid, cool

and humid, and cold and cloudy) of North-East India, considering normal building stock incorporating naturally ventilated, air-conditioned, and mixed-mode (having optional AC units) office buildings. This study was completed, and the thermal comfort status was defined in naturally ventilated office buildings in northeast India. A year-long monitoring and 2326 questionnaire-based thermal comfort surveys were conducted, resulting in 2326 valid questionnaire responses collected from three representative locations across the three climatic zones of Northeast India. This study resulted in two international journals (Q1) and four international conference papers.

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Declaration:

I hereby declare that the information furnished above is true to the best of my knowledge.

Date: 22nd June 2026 **(MANOJ KUMAR SINGH)**
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