

SUNIL KUMAR SANSANIWAL

Present Address:

Centre for Energy and Environment,
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Google Scholars: <https://scholar.google.com/citations?user=fcJWLUQAAAAJ&hl=en>

Permanent Address:

52, Chander Lane, Kaimari Road,
Hisar 125001, Haryana, India

PROFILE SUMMARY

Lead with ten years of experience in research & development, consultancy, and academia in mechanical engineering. Extensive experience in handling government consultancy and research projects with knowledge dissemination through research training and scientific publications.

EDUCATION

Ph. D. (Doctor of Philosophy) in Energy and Environment

Thesis submitted (Jul 2021)

Malaviya National Institute of Technology (MNIT), Jaipur, Rajasthan, India

Thesis: *Quantification of Occupant's Adaptive Actions for Improving Indoor Environmental Quality in Buildings*

Supervisors: Dr. Jyotirmay Mathur (Sr. Professor, Centre for Energy and Environment, MNIT Jaipur) and Dr. Sanjay Mathur (Professor and Head, Civil Engineering Department, MNIT Jaipur)

M. Tech. (Master of Technology) in Mechanical Engineering

Jun 2014

Guru Jambheshwar University of Science and Technology (GJUS&T), Hisar, Haryana, India

Thesis: *Analysis of Ginger Drying Inside a Forced Convection Indirect Solar Dryer: An Experimental Study*

Supervisors: Dr. Mahesh Kumar (Associate Professor, Mechanical Engineering Department, GJUS&T Hisar) and Dr. Pankaj Khatak (Professor and Head, Mechanical Engineering Department, GJUS&T Hisar)

CGPA: 7.3 out of 10

B. E. (Bachelor of Engineering) in Mechanical Engineering

Jun 2010

Maharshi Dayanand University, Rohtak, Haryana, India

Final year project: *Vehicle Differential Power Control System*

Percentage marks: 75.18% (Degree awarded with distinction)

RESEARCH EXPERIENCE (6.0 Years)

Senior Research Fellow

Jan 2018-till date

Centre for Energy and Environment, Malaviya National Institute of Technology, Jaipur, India

Project: *Residential Building Energy Demand Reduction in India*

Funding Agency: *Department of Science and Technology (Government of India) and Engineering and Physical Sciences Research Council (United Kingdom)*

Job description: *Review of existing and available empirical data on thermal comfort and energy use in Indian dwellings. Field study of residential thermal comfort and energy use that involves physical measurements, procurement of instruments, statistical analysis, and development of scientific publications.*

Research Associate

Nov 2017-Jan 2018

Centre for Energy and Environment, Malaviya National Institute of Technology, Jaipur, India

Project: *Indoor Environmental Quality Standard Implementation Methodology*

Funding Agency: *Indian Society of Heating, Refrigerating and Air Conditioning Engineers*

Job description: *Demonstration of the implementation methodology for India's first indoor environmental quality standard (IEQ) in actual buildings. Performed a field study that involves physical measurements of IEQ parameters, procurement of instruments, statistical analysis, and development of publication/ reports.*

Project Engineer

Jun 2016-Jun 2017

Centre for Energy and Environment, Malaviya National Institute of Technology, Jaipur, India

Project: *Centre for Building Energy Research and Development*

Funding Agency: *India-United States Partnership to Advance Clean Energy*

Job description: *Operation and maintenance of solar thermal technologies particularly the Scheffler dish for steam cooking applications. Research activities including data refinement and analytics for improving the ISHRAE weather data and development of scientific publications or reports.*

Senior Research Fellow

Dec 2014-May 2016

Thermochemical Conversion Division, SSS-National Institute of Bio-energy, Kapurthala, India

Project: *National Bioenergy Promotion Fellowship*

Funding Agency: *Ministry of New and Renewable Energy, Government of India*

Job description: *Operation and maintenance of downdraft biomass gasification unit. Research activities including research administration, scientific publications, and writing research proposals especially on thermochemical biomass conversion processes.*

TEACHING EXPERIENCE (1.6 Years)

Teaching Associate

Sep 2011-May 2012

Mechanical Engineering Department, Guru Jambheshwar University of Science & Technology, Hisar, India

Subjects taught: *Refrigeration and air-conditioning, thermodynamics, energy conversion*

Lecturer

Aug 2010-May 2011

Mechanical Engineering Department, Kalpana Chawla Institute of Engineering & Technology, Hisar, India

Subjects taught: *Refrigeration and air-conditioning and thermodynamics*

CONSULTANCY EXPERIENCE (2.25 Years)

Technical Course Developer

May 2018-Dec 2018

Environmental Design Solutions, New Delhi, India

Job description: *Development of e-learning academic courses on renewable energy technologies for graduate-level students. Two courses on 'A Primer to Solar Power' (<https://www.udemy.com/course/a-primer-to-solar-energy/>) and 'Introduction to Renewable Energy' (<https://www.udemy.com/course/renewable-energy/>) have been developed.*

Managed Network Expert

Sep 2012-Dec 2014

Chegg India Private Limited, Visakhapatnam, India

Job description: *To provide educational guidance and assistance to the students by providing them relevant academic solutions and courses of their interests.*

COMPUTER PROFICIENCY

Computer Basics; Microsoft Word/Excel/Powerpoint; Design tool - AutoCAD (Basic); Statistical tool - SPSS (Basic) and Simulation tool - DesignBuilder (Basic).

AWARDS/ACHIEVEMENTS/RECOGNITIONS

- Awarded the prestigious BHAVAN Fellowship 2020 for carrying out research at the University of Texas at Austin, USA (Funded by Indo-U.S. Science and Technology Forum and DST, Govt. of India)
- Joined the Indo-German Research and Academic Program at the Technical University of Applied Sciences, Germany in 2019 (Funded by German Academic Exchange Service).
- Received recognition for authoring the most cited research paper published in the Renewable and Sustainable Energy Reviews Journal of Elsevier during 2017-18.
- Received outstanding reviewer recognitions by reputed journals of Elsevier such as Renewable Energy Focus, Solar Energy, and Energy Conversion & Management in 2018.
- Awarded National Bioenergy Promotion Fellowship at SSS-National Institute of Bioenergy under the Ministry of New & Renewable Energy, Government of India during 2014-16.
- Conferred with Silver Medal for outstanding academic accomplishments during Bachelor of Engineering in Mechanical Engineering in 2010.
- Meritorious award for securing distinction position in Secondary School Examinations conducted by the Board of School Education Haryana in 2004.
- Awarded rank 1 in Bhartiya Sanskriti Gyan Pariksha conducted by Shantikunj Gayatri Parivar (Haridwar) in 2004.
- Awarded rank 2 in Interschool Competition Exam conducted by Ideal Shiksha Samiti (Hisar) in 2002.

CONFERENCES/WORKSHOPS/TRAINING/COURSES ATTENDED

- One day industry and academia amalgamation named 2nd PAN India Research Network Meet jointly organized by National Institute of Wind Energy, Chennai, and CEE, MNIT Jaipur (06th Jan 2020).
- One day Industry-Academia Conclave on Energy Storage organized by Department of Science and Technology, Govt. of India at MNIT Jaipur (30th Nov 2019).
- Two days regional workshop on Energy Efficiency in Residential Buildings organized by Bureau of Energy Efficiency, Ministry of Power in association with RRECL at Jaipur (05-06th Nov 2019).
- One-week academic workshop on 'Energy Storage: The Future of Energy' under the AICTE Training and Learning (ATAL) scheme organized by MNIT, Jaipur, India (11-15th Mar 2019).
- South Asia's Largest Exhibition on Refrigeration & Cold Chain, Air Conditioning, Ventilation, and Intelligent Buildings organized by Indian Society of Heating, Refrigerating, and Air Conditioning Engineers at BEC, Mumbai, India (28th Feb to 2nd Mar 2019).
- One-week short-term course on Research Methods and Data Analysis Using SPSS organized by NIT Jalandhar, India (20-24th Jan 2019).
- E-course on Cities and Climate Change organized by UN Climate Change Learning Partnership 2019.
- Three days' workshop on Building Performance Evaluation (under the initiative of the UK-India Learn-BPE project) at Manipal University, Jaipur, India (11-13th Oct 2018).
- One DL program on ASHRAE 90.1 organized by ASHRAE Jaipur Section in association with ISHRAE Jaipur Chapter at Hotel Leisure Inn Grand Chanakya, Jaipur, India (23rd Aug 2018).
- One day SVAGRIHA Training Program organised by Green Rating for Integrated Habitat Assessment at MNIT, Jaipur, India (03rd Aug 2018).
- South Asia's Largest Exhibition on Refrigeration & Cold Chain, Air Conditioning, Ventilation, and Intelligent Buildings organized by Indian Society of Heating, Refrigerating, and Air Conditioning Engineers at BIEC, Bangalore, India (22-24th Feb 2018).
- One-week short-term course on Building Energy Simulation for ECBC 2017 organized by Indian Institute of Information Technology, Hyderabad, India (12-16th Feb 2018).
- One-day Thought-Provoking Workshop on Pertinent Issues Related to Air Quality in India, organized by Civil Engineering Department, MNIT, Jaipur, India (20th Jan 2018).

- One-week short-term course on Recent Advances in PCM-based Cooling Technology organized by IIT Bhubaneswar (India) under GIAN scheme (11-15th Dec 2017).
- Five days National Workshop on Performance Evaluation and O&M of Solar Thermal Systems organized by the National Institute of Solar Energy under MNRE, India (20-24th Apr 2017).
- One-day National Workshop on Concentrated Solar Technologies organized by Rajasthan Renewable Energy Corporation Limited at Bhiwadi, Rajasthan, India (2nd Mar 2017).
- International Conference on New and Renewable Energy Resources for Sustainable Future organized by SKIT, Jagatpura, Jaipur, India (2-4th Feb 2017).
- First and Second International Conference on Recent Advances on Bio-energy Research organized by SSS-NIBE, Kapurthala, India (14-17th Mar 2015 and 25-27th Feb 2016).
- International Conference & Exhibition on Cutting Edge Technological Challenges in Mechanical Engineering organized by NIET, Greater Noida, India (21-22nd Mar 2015).
- National Conference on Research Methodology and Advancement in Engineering and Science organized by Shanti Niketan College of Engineering, Hisar, India (24th Apr 2013).
- Three days National Workshop on Designing of Concentrated Solar Thermal & Solar Water Heating System organized by National Institute of Solar Energy, Gurgaon, India (08-10th Aug 2016).
- One-week National Training Program on Biofuel Production and Its Characterization organized by SSS-NIBE, India (30th Nov-04th Dec 2015).
- Three days National Training Program on Biofuel Production and Catalysis organized by SSS-NIBE, India (19-21st Jan 2015).

PUBLICATIONS

1. **Sansaniwal SK**, Mathur J and Mathur S. Quantifying occupant's adaptive actions for controlling indoor environment in naturally ventilated buildings under composite climate of India. Journal of Building Engineering 2021, Mar 12:102399 (**SCI**).
2. **Sansaniwal SK**, Jain N, Mathur J and Mathur S. Towards implementing an indoor environmental quality (IEQ) standard in buildings: a pilot study. Building Services Engineering Research and Technology 2020. DOI: 10.1177/0143624421997989 (**SCI**).
3. **Sansaniwal SK**, Tewari P, Kumar S, Mathur J and Mathur S. Impact assessment of air velocity on thermal comfort in composite climate of India. Science and Technology for the Built Environment 2020; 26:1301-1320 (**SCI**).
4. **Sansaniwal SK**, Mathur J, Garg V and Gupta R. Review of studies on thermal comfort in Indian residential buildings. Science & Technology for Built Environment 2020;26(6):727-48 (**SCI**).
5. **Sansaniwal SK**, Mathur J and Mathur S. Review of practices for human thermal comfort in buildings: Present and future perspectives. International Journal of Ambient Energy 2020. (**Scopus**).
6. **Sansaniwal SK**. Advances and challenges in solar-powered wastewater treatment technologies for sustainable development: an overview. International Journal of Ambient Energy, 2019. DOI: 10.1080/01430750.2019.1682038 (**Scopus**).
7. **Sansaniwal SK**, Sharma V, Mathur J. Energy and exergy analyses of various typical solar energy applications: a comprehensive review. Renewable and Sustainable Energy Reviews 2018; 82 (1):1576-1601 (**SCI**).
8. **Sansaniwal SK** et al. Global challenges in the sustainable development of biomass gasification: an overview. Renewable and Sustainable Energy Reviews 2017;80:23-43 (**SCI**).
9. **Sansaniwal SK** et al. Recent advances in the developments of biomass gasification technology: a comprehensive review. Renewable and Sustainable Energy Reviews 2017;72:363-84 (**SCI**).
10. Kumar M, **Sansaniwal SK**, Khatak P. Progress in solar dryers for drying various commodities. Renewable and Sustainable Energy Reviews 2016; 55:346-60 (**SCI**).

11. **Sansaniwal SK**, Kumar M. Analysis of ginger drying inside a natural convection indirect solar dryer: An experimental study. *Journal of Mechanical Engineering & Sciences* 2015; 9:1671-85 (**Scopus**).
12. **Sansaniwal SK**, Kumar M, Kaushal R, Kumar V. Investigation of indirect solar drying of ginger rhizomes (*Zingiber officinale*): a comparative study. *Journal of Engineering Science & Technology* 2017; 12(7):1956-71 (**Scopus**).
13. **Sansaniwal SK**, Bhutani V. Recent advances in the developments of pool boiling systems for food processing. *Journal of Biofuel and Bioenergy* 2016; 2(1):44-51.
14. Pal K, **Sansaniwal SK**, Gera P, Jha MK, Tyagi SK. An assessment to the biomass-based combustion systems. *Journal of Biofuel and Bioenergy* 2016; 2(2):102-21.
15. **Sansaniwal SK**, Kaushal R. Biomass pyrolysis for sustainable developments of bio-products. 1st International Conference on New Frontiers in Engineering, Science & Technology, New Delhi, India, Jan 8-12, 2018, 656-63.
16. **Sansaniwal SK**, Sahdev R and Kumar M. Towards natural convection solar drying of date palm fruits (*Phoenix dactylifera* L.): an experimental study. Submitted in *Journal of Stored Products Research* 2021 (**SCI**).

STUDENT GUIDED /SUPERVISED

Guided final year students of B. Tech. (Mechanical Engineering) for their major project entitled 'Field Assessment of IEQ in Residential Buildings during Winter Season of Jaipur'.

PROFESSIONAL ACTIVITIES

1. Membership of professional bodies:
 - ASHRAE Technical Committee (T-TAC-TC01.01; T-TAC-TC02.01 and T-TAC-TRG4.IAQP)
 - Chartered Institution of Building Services Engineers (Member ID: 058034)
 - Indian Society of Heating, Refrigerating & Air Conditioning Engineers (Member ID: S00079280)
 - Institution of Mechanical Engineers (Member ID: 80181805)
 - International Association of Engineers (Member ID: 246519)
 - Society of Building Science Educators (Member ID: 56179992)
 - Teaching & Education Research Association (Member ID: M19101178)
 - The Asia Society of Researchers (Senior Member ID: R219042002)
2. Workshops, Conferences, and Research meeting organized:
 - Member, Organizing Committee for Industry-Academia Conclave on Energy Storage jointly organized by Department of Science and Technology (GOI) and MNIT, Jaipur (30th Nov 2019).
 - Member, Organizing Committee for International Conference & Exhibition on Green Buildings organized by the Confederation of Indian Industry (CII) at Jaipur (04-07th Oct 2017).
 - Member, Organizing Committee for First & Second International Conferences on Recent Advances on Bioenergy Research organized by SSS-National Institute of Bioenergy, Kapurthala (2015-16).
 - Member, Organizing Committee for the First Research Advisory Committee Meeting organized by SSS-National Institute of Bioenergy, Kapurthala (22nd Jun 2015).
3. Research projects, proposals, and reports prepared:
 - Prepared a report on Meta-study of Residential Energy and Comfort Datasets in India (Under Indo-UK Joint Research Project Funded by EPSRC, United Kingdom, and DST, Govt. of India).
 - Prepared two chapters on biomass gasification and pyrolysis for a consultancy project on Training Module for Trainees in Bioenergy (Under National Bioenergy Fellowship Program, Govt. of India).
 - Prepared a research project on Biomass Gasifier Testing, Certification, and R&D Centre at SSS-NIBE, Kapurthala (Under National Bioenergy Fellowship Program, Govt. of India).
 - Prepared a proposal for training of participants from government bodies and ASEAN member States on Bioenergy Technology (Under National Bioenergy Fellowship Program, Govt. of India).

4. Reviewer:

- Applied Energy (SCI)
- Applied Water Science (UGC-CARE)
- Bentham Science Publishers
- Energy (SCIE)
- Energy Conversion and Management (SCIE)
- Energy Sources, Part A: Recovery, Utilization & Environmental Effects (SCI)
- Environmental Science and Pollution Research (SCI)
- Heliyon (SCIE)
- Ingeniería-e-Investigación (SCIE)
- International Energy Journal (Scopus)
- International Journal of Ambient Energy (Scopus)
- International Journal of Energy Research (SCIE)
- Journal of Building Construction & Planning Research
- Journal of Engineering Science & Technology (Scopus)
- Journal of Thermal Analysis & Calorimetry (SCI)
- Lawrence Press
- Renewable & Sustainable Energy Reviews (SCI)
- Renewable Energy Focus (Scopus)
- Scientific Nature Reports (SCI)
- Science of the Total Environment (SCIE)
- Solar Energy (SCIE)
- Sustainable Cities and Society (SCIE)

PERSONAL INFORMATION

- Date of Birth: 03.08.1989 (Bhiwani, Haryana, India)
- Linguistic Proficiency: Hindi, English, Haryanvi
- Special Interest/ Hobbies: Watching comedy shows and working out at the gym

INTERNATIONAL VISITS & TOURS

Technical University of Applied Science (Germany); Amsterdam (Netherland); Brussels (Belgium) and Paris (France)

REFEREES

1. Dr.-Ing. Jyotirmay Mathur
Sr. Professor, Mechanical Engineering Department and Centre for Energy and Environment
Head, MNIT Innovation and Incubation Centre
Malaviya National Institute of Technology, J.L.N. Marg, Jaipur 302017, India
E-mail: jmathur.mech@mnit.ac.in
2. Dr. Sanjay Mathur
Professor and Head, Civil Engineering Department
Malaviya National Institute of Technology, J.L.N. Marg, Jaipur 302017, India
E-mail: smathur.ce@mnit.ac.in