CURRICULUM VITAE

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CAREER OBJECTIVE

To contribute as a faculty member in Mechanical Engineering through high-quality teaching, impactful research, and interdisciplinary innovation in thermal engineering, renewable energy systems, advanced energy storage, and sustainable mechanical technologies, while supporting academic excellence and national technological development.

RESEARCH AREAS / SPECIALIZATION

- Advanced Thermal and Fluid Engineering
- Thermal Energy Storage Systems (PCM-Based Technologies)
- Sustainable Building Energy Systems
- Renewable Energy Systems (Solar, Biomass, Hybrid Systems)
- Heat Transfer and Thermal Management
- Smart Thermal Systems and AI-Driven Energy Optimization
- Hydrogen and Clean Energy Technologies

EDUCATIONAL QUALIFICATIONS

Degree	Specialization	Institution	Year	Percentage/ CGPA
Ph.D.	**Thermal and Fluid Engineering**	**Indian Institute of Technology (BHU), Varanasi**	**2025**	**9/10**
MTech.	**Renewable Energy**	**Academy of Scientific and Innovative Research**	**2015**	**8.41/10**

Degree	Specialization	Institution	Year	Percentage/ CGPA
		(An Institute of National Importance)		
B.Tech.	**Mechanical Engineering**	**Gautam Buddha Technical University, Lucknow**	**2012**	**73.44 %**

Ph.D. Thesis: ***Experimental Investigation of Energy-Efficient Building Envelope Incorporated with Bio Phase Change Materials.***

TEACHING & RESEARCH EXPERIENCE

Position	Institution/Organization	Duration
Postdoctoral Researcher	**Indian Institute of Technology (BHU), Varanasi**	**Oct 2025 – Present**
Research Experience (Renewable Energy Devices)	**Indian Institute of Technology (BHU), Varanasi**	**July 2022-Oct 2025**
Assistant Professor	**Ajay Kumar Garg Engineering College, Ghaziabad**	**Sept 2015 – July 2022**
Junior Research Fellow (JRF)	**CSIR–Structural Engineering Research Centre, Chennai**	**Aug 2013 – Aug 2015**

PUBLICATIONS

Journal Publications

1. **B. M. Tripathi**, S. K. Shukla, and P. K. S. Rathore, "A comprehensive review on solar to thermal energy conversion and storage using phase change materials," J. Energy Storage, vol. 72, p. 108280, Nov. 2023, doi: 10.1016/J.EST.2023.108280.
2. **B. M. Tripathi** and S. K. Shukla, "A comprehensive review of the thermal performance in energy efficient building envelope incorporated with phase change materials," J. Energy Storage, vol. 79, p. 110128, Feb. 2024, doi: 10.1016/J.EST.2023.110128.
3. **B. M. Tripathi** and S. K. Shukla, "Experimental investigation of bio-based PCM for energy-efficient building envelopes," Advances in Building Energy Research, pp. 1–26, Jan. 2026, doi: 10.1080/17512549.2026.2614759.
4. V. Shree et al., "A comprehensive review of harnessing the potential of phase change materials (PCMs) in energy-efficient building envelopes," Journal of Building Engineering, vol. 101, May 2025, doi: 10.1016/j.jobe.2025.111841.

5. **B. M. Tripathi** and S. K. Shukla, "Synthesis and Characterization of Eutectic Mixture of Beeswax-Lauric Acid-Graphite/Zeolite Form-Stable Composite Phase Change Material for Building Applications," Springer Proceedings in Materials, vol. 84, pp. 191–203, 2025, doi: 10.1007/978-981-96-9513-3_15/FIGURES/4.
6. **B. M. Tripathi** and S. K. Shukla, "Soybean and Rice-Bran Oil blended Biodiesel Production and Performance Test on 4-Stroke Single Cylinder Diesel Engine," Journal of Solid Waste Technology and Management, vol. 50, no. 3, pp. 522–531, Oct. 2024, doi: 10.5276/JSWTM/ISWMAW/503/2024.522.
7. S. Maurya, **B. M. Tripathi**, and S. K. Shukla, "Modeling and Analytical Comparison of the Evaporator Designs for Organic Rankine Cycle (ORC) Using Refrigerant R245fa," AIP Conf. Proc., vol. 3385, no. 1, p. 70001, Feb. 2026, doi: 10.1063/5.0316238/3380783.

Book Chapters

- **B. M. Tripathi**, Samakshi Verma, Sonu Kumar, "Building-integrated greenery systems", Thermal Evaluation of Indoor Climate and Energy Storage in Buildings CRC Press (2024)
- **B. M. Tripathi** and S. K. Shukla, "Responsive building components and systems", Thermal Evaluation of Indoor Climate and Energy Storage in Buildings, CRC Press (2024).
- **B. M. Tripathi** and S. K. Shukla "Impact of external pollutants on indoor air quality", New Perspectives in Indoor Air Quality Elsevier (2025).

Conference Publication

- EHST 2025, Imperial College London, "Advanced PCM-Enhanced Composites: Revolutionizing Energy Efficiency in Building Envelopes". (15^{th} to 17^{th} July 2025).

PATENTS

- **B. M. Tripathi** and **S. K. Shukla**, *"A Biomass Gasification System and a Process Thereof,"* Indian Patent No. **576238**.
- **B. M. Tripathi** and **S. K. Shukla**, *"A Phase Change Material Composite and Process for Preparing the Same,"* Indian Patent No. **587397**.

AWARDS & ACHIEVEMENTS

- GATE 2013 – 99.1 Percentile (Mechanical Engineering)
- GATE 2018 – 98.3 Percentile (Mechanical Engineering)
- Junior Research Fellowship (CSIR)
- Senior Research Fellowship / Doctoral Research Fellowship
- International Conference Presentation – EHST 2025, Imperial College London.

DECLARATION

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