



**Vikash Singh**

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**([Google Scholar](#), [Scopus](#))**

## PROFILE

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- Currently working as an Assistant Professor in Department of Civil Engineering since 11/09/2023.
- Worked as Technical Assistant with State Technical Agency (STA) Prof. J. B. Srivastava (IET, Lucknow) in Pradhan Mantri Gram Sadak Yojana (PMGSY).
- Worked as a Third Party Inspector, Consultant and Quality Control Engineer in various State Government Projects like U. P. State Construction & Infrastructure Development Corporation Ltd., Uttar Pradesh Projects Corporation limited etc.
- Worked as a Research cum Teaching Fellow in Department of Civil Engineering, Institute of Engineering and Technology, Lucknow from 01/10/2020 to 10/09/2023 under Homi Bhabha Research cum Teaching Fellowship.
- Worked as a Technical Manager in Swastik Test House (NABL Accreditation Laboratory), Lucknow.
- Worked as a Material Testing and Designing Consultant in Different Laboratories.
- Worked as an Assistant Professor at S.V.N.I.E.T, Barabanki from 12/08/2019 to 30/09/2020.
- Master of Technology (Seismic Design and Earthquake Engineering) from Madan Mohan Malaviya University of Technology, Gorakhpur in 2019.
- Bachelor of Technology (Civil Engineering) from Integral University, Lucknow in 2017.

## RESEARCH INTEREST:

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- Waste materials (Fly ash, steel slag, zinc slag, red mud, copper slag, C&D waste etc.) for embankment and pavement layers
- Soil stabilization with new stabilizers
- Pavement (Flexible and Rigid) performance study
- Materials (Fly ash, lime, GGBFS, silica fume, steel slag, eggshell powder, metal scrap, red mud,

- C&D waste etc.) for sustainable concrete construction
- Machine Learning and Artificial Neural Network in Civil Engineering Applications.

#### SUMMARY OF RESEARCH ACCOMPLISHMENT:

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- Investigated the use of various industrial by-products and waste materials (Fly ash, steel slag, zinc slag, red mud, copper slag, and Construction & Demolition (C&D) waste) as sustainable alternatives for embankment and pavement layers.
- Focused on improving mechanical properties, durability, and environmental sustainability.
- Explored new stabilizers for soil stabilization to enhance geotechnical properties such as bearing capacity, shear strength, and erosion resistance.
- Conducted performance studies on flexible and rigid pavement systems under varying loads and environmental conditions.
- Assessed long-term durability and cost-effectiveness.
- Addressed challenges like high alkalinity and eco-toxicity while ensuring environmental safety.
- Researched the incorporation of materials such as Fly ash, lime, Ground Granulated Blast Furnace Slag (GGBFS), silica fume, steel slag, eggshell powder, metal scrap, red mud, and C&D waste for green concrete production.
- Optimized mix designs to achieve enhanced mechanical properties and reduce carbon footprint.
- Implemented AI techniques for predictive modeling and optimization in construction material design, pavement performance, and structural analysis.
- Focused on the integration of data-driven approaches for efficient decision-making and sustainability in civil engineering projects.
- Worked on Optum G-2, Geo5, IIT PAVE software.

#### PROFESSIONAL MEMBERSHIP:

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- Life Time membership of Indian Geotechnical Society (LM- 5835)
- Membership of International Association of Engineers (IAENG). (Membership No. 254609).
- Membership of University Association of Civil, Structural and Environmental Engineers. (Membership Id.- SM101000602763)

#### COURSE TAUGHT:

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- Geotechnical Engineering
- Advance Soil Mechanics
- Ground Improvement Techniques
- Advance Geotechnical Engineering
- Rock Mechanics
- Site Investigation and Foundation Engineering
- Clay Mineralogy and Expansive Soil
- Open channel Flow

- Design of Foundation Structures

#### ADMINISTRATIVE/DEPARTMENTAL RESPONSIBILITY

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- Departmental NSS Coordinator
- Departmental Sport Coordinator
- M. Tech. Geotechnical Engineering Coordinator
- In charge of Geotechnical Engineering Lab
- Member of NAAC Criteria –II (At department level)

#### STUDENTS SUPERVISION

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- B. Tech Project Supervision                      12 Completed, 04 Ongoing
- M. Tech. Dissertation Supervision              02 Completed, 06 Ongoing

#### AWARDS/RECOGNITION

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- Student Coordinator Award, Department of Civil Engineering, Integral University, Lucknow
- Best Paper Award in 3rd International Conference on Sustainable Construction Technologies and Advancement in Civil Engineering organized by Department of Civil Engineering, Shri Vishnu Engineering College, Andhra Pradesh, India
- Certificate of Guidance (Honor) for B. Tech. Project under CSTUP – Engineering Student’s Project-Grant Scheme 2022-23. (IET, Lucknow)
- Certified Microsoft innovative Educator
- Certificate of Guidance (Honor) for B. Tech. Project under CSTUP – Engineering Student’s Project-Grant Scheme 2023-24. (Integral University, Lucknow)
- Invited for expert lecture in webinar organized by Department of Civil Engineering, SVNIET, Lucknow (2022).
- Invited for expert lecture in webinar organized by Department of Civil Engineering, SRMGPC, Lucknow (2023).
- Completed 12 weeks NPTEL/SWAYAM course on “Geotechnical Engineering – I”.
- Completed 08 weeks NPTEL/SWAYAM course on “Geotechnical Engineering Laboratory”.
- Completed 12 weeks NPTEL/SWAYAM course on “Ground Improvement”.
- Completed 15 weeks NPTEL/SWAYAM course on “Academic Writing”.

#### PUBLISHED/GRANT PATENTS

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- Safety Helmet with camera and Solar Powered Fan for Construction Workers. (Cbr No. – 201362, Design No. – 363891-001, No – 116942). Indian Design Grant Patent

- Thermal Imaging Camera for Solar Power Plant. (Design No. – 397184-001, S. No. – 151336, Date – 10/10/2023). Indian Design Grant Patent
- Electronic Gloves for Woman Safety. (Design No. – 396730-001, S. No. – 150157, Date – 05/10/2023). Indian Design Grant Patent
- A wireless electronic device for presentation. (Design No. – 6342704, Date – 02/02/2024). UK Design Patent Grant

## PUBLISHED/ACCEPTED SCI/SCOPUS RESEARCH PAPERS

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- Kumar, Sujit, N. Ahalya, **Vikash Singh**, Pravin P. Patil, A. V. Raghavendra Rao, A. Nirmala Jyothsna, P. Abhilash, Rupesh Kushwah, and Sojan Palukaran Timothy. "Exhibition of Dielectric Property Based on Soil Class and Moisture Presence for Bengaluru District." *Advances in Materials Science and Engineering* 2022, no. 1 (2022): 6807204.
- Sathish, T., Prashant Sunagar, **Vikash Singh**, Sampath Boopathi, Abdullah M. Al-Enizi, Bidhan Pandit, Manish Gupta, and Satbir S. Sehgal. "Characteristics estimation of natural fibre reinforced plastic composites using deep multi-layer perceptron (MLP) technique." *Chemosphere* 337 (2023): 139346.
- Kumar, Ajay, **Vikash Singh**, Sumit Singh, Rakesh Kumar, and Samreen Bano. "Prediction of unconfined compressive strength of cement–lime stabilized soil using artificial neural network." *Asian Journal of Civil Engineering* 25, no. 2 (2024): 2229-2246.
- **Singh, Vikash**, Samreen Bano, Vinay Bhushan Chauhan, Priyaranjan Pal, Anil Kumar, and Jyoti Bhushan Srivastava. "Red mud as a sustainable road construction material: An experimental investigation." *Construction and Building Materials* 411 (2024): 134549.
- Singh, Sumit, Samreen Bano, **Vikash Singh**, Amarendra Singh, Ajay Kumar, and Satyendra Narain Singh. "An investigative inquiry into harnessing the capabilities of machine learning for the assessment of compressive strength in red mud-based concrete enriched with fly ash as a viable road construction constituent." *Asian Journal of Civil Engineering* 25, no. 2 (2024): 1571-1585.
- **Singh, Vikash**, Ajay Kumar, Sumit Singh, Samreen Bano, Anil Kumar, Virendra Pathak, and Jyoti Bhushan Srivastava. "Characterization and Utilization of Recycled Aluminium Residues for Eco-Friendly Road Construction Practices." (2024).
- V. Mohanavel, Garikapati Diwakar, Mahendran Govindasamy; **Vikash Singh**; I. Paul Theophilus Rajakumar, Manzoore Elahi M. Soudagar; Sathish Kannan; Saleh H. Salmen; Sulaiman Ali Alharbi. "Fabrication of ramie/hemp fibers-reinforced hybrid polymer composite—A comprehensive study on biological and structural application." *AIP Advances Journal* (2024): (Volume 14, Issue 8).
- Khan, Zishan Raza, Syed Aqeel Ahmad, and **Vikash Singh**. "Water Transmissible Pavement: A physics of Granular Sub-base Permeability through Road Dust Analysis using Machine Learning." (2024).
- Arivumani, V., **V. Singh**, C. Geetha, and C. Senthilkumar. "Activated rice husk biochar for azo dye removal: Batch adsorption, kinetics and thermodynamic studies." (2024).
- Bano, Samreen, Neha Mumtaz, Farheen Bano, **Vikash Singh**, and Syed Aqeel Ahmad. "Production of structural concrete and the effects of various waste materials on concrete used as partial replacements for cement." (2024).
- Gulati, Ritu, Samreen Bano, Farheen Bano, Sumit Singh, and **Vikash Singh**. "Compressive strength of concrete formulated with waste materials using neural networks." *Asian Journal of Civil Engineering* (2024): 1-16.

- Sumit Singh, **Vikash Singh**, Ajay Kumara, Amarendra Singh, Atul Kumar Srivastava & Virendra Pathak “A Decadal Study of PM2.5 Concentrations over Delhi using MERRA-2 and Ground Measurements: Predictive Insights via Machine Learning” Indian Journal of Pure & Applied Physics (2024): Vol. 62, pp. 764-778.
- Prasenjit Kumar, Prince Yadav, **Vikash Singh** “Exploring Steel Fiber Integration in Dry Lean Concrete: Predictive Analysis of Compressive Strength and Performance via Machine Learning” Asian Journal of Civil Engineering (2024): 1-16.

#### PAPER PUBLISHED IN NATIONAL/INTERNATIONAL CONFERENCES

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- **Singh, Vikash** and Chauhan, V.B. (2019) “Reduction of dynamic lateral earth pressure on retaining wall using waste tyre” in proceeding of Indian conference on Geotechnical and Geo-environmental Engineering (ICGGE-2019), March 01-02, 2019, **MNNIT Allahabad** and Indian Geotechnical Society Allahabad Chapter Prayagraj, India, pp. 1-4, in CD (Paper ID-118).
- Bano, S., **Singh V.** and Ahmad S. Aqeel. (2019) “Turbidity curtain: An approach” in proceeding of Indian conference on Geotechnical and Geo-environmental Engineering (ICGGE-2019), March 01-02, 2019, **MNNIT Allahabad** and Indian Geotechnical Society Allahabad Chapter Prayagraj, India, pp. 1-4, in CD (Paper ID-80).
- **Singh, V.**, Bano, S., Ahmad Sabih. and Hassan N. (2019) “Feasibility of ANN in civil engineering” in proceeding of National conference on Smart Material, Devices and Sustainable Technologies (SMDST-19), March 15-16, 2019, **MMMUT Gorakhpur**.
- **Singh, V.**, Yadav, A. K. and Bano, S. (2019) “A theoretical study of liquefaction process”, in proceeding of international conference on Civil Engineering, Built Environment, Architecture and Environmental Science for Sustainable Development (CBAE-2019), organized by Krishi Sanskriti Publication in **JNU New Delhi**, March, 30, 2019.
- **Singh, V.**, Bano, S. and Ahmad S. Aqeel. (2019) “Feasibility of Geo-textile in Transportation Engineering: An Overview” in proceeding of 7th Indian Geotechnical Engineers Conference (IYGEC-2019), March 15-16, 2019, **NIT Silchar** and Indian Geotechnical Society, Assam.
- Ahmad, V., Kumar, **V., Singh, V.** and Ansari, M. (2019) “An approach to reduce the adverse outcome of urban heat island: an overview” in proceeding of 1<sup>st</sup> National conference on Recent Trends in Architecture & Civil Engineering towards Energy Efficient and Sustainable Development (NCACESD-2019), January 09-11, 2019, Department of Architecture **NIT Tiruchirappalli**, India, pp. 622-625, in CD.
- **Singh, V.**, Ahmad, V., Sonkar, B., Toby, A. M., (2019) “Numerical Study on the Dynamic Behaviour of Retaining Wall Backfilled with Waste Tyre” in proceeding of 2<sup>nd</sup> National Conference on Recent Advancement in Civil Engineering (RACE II – 2019), June 06-07, 2019, Department of Civil Engineering **NIT Patna**, India, Paper Id 19042.

- Bano, S., **Singh, V.**, Shadab, M., Ahmad, K. F. and Khan, K. (2019) "Retrofitting of Column" in proceeding of international conference on Modern Trends in Civil Engineering (Towards Sustainable Development Goals) (ICMTCE-2019), **Shri Ramswaroop Memorial University**, Lucknow.
- Mallick, F., Ahmad, F. and **Singh, V.** (2024) "Sustainability Assessment of Recycled Concrete Aggregate, Eggshell, and Red Mud in Concrete for Building Construction" International Conference on Sustainable Materials for Engineering Applications, **IIT Madras**.
- Ahmad, J., Khan, M., and **Singh, V.** (2024) "Predicting Unconfined Compressive Strength in Stabilized Soil with RBI Grade 81 using Artificial Neural Network" International Conference on Emerging Trends in IoT and Computing Technologies, **Goel Institute of Technology & Management, Lucknow**.
- Zishan Raza Khan, Syed Aqeel Ahmad, **Vikash Singh** (2024) "Auto-Healing of Concrete Using Bacteria: A Sustainable Solution" International Scientific and Practical Conference "Status and Development Prospects of Fundamental and Applied Microbiology: The Viewpoint Of Young Scientists" (2024).
- Shinde, Vishal Baburao, Ranjeet Yadav, **Vikash Singh**, Arun Prakash, Atul Sarojwal, and Shaik Vaseem Akram. "Linear Analysis of RC Tower with wind loading and telecommunication system." In 2022 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES), pp. 1-6. IEEE, 2022.
- **Singh, Vikash**, Samreen Bano, Rakesh Kumar, Vivek Kumar Tripathi, and Anand Verma. "Numerical Study on the Reduction of Dynamic Lateral Earth Pressure on Retaining Wall using Waste Tyre." In IOP Conference Series: Materials Science and Engineering, vol. 1273, no. 1, p. 012017. IOP Publishing, 2023.

#### **PUBLISHED NON-SCI-SCOPUS BUT PEER REVIEWED RESEARCH PAPERS**

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- Vikash Singh, Samreen Bano and Syed Aqeel Ahmad (2019) "Feasibility of Geo-textile in Transportation Engineering – An Overview", International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES), ISSN (Online) – 2455-2585.
- Bano, S., Singh, V., Shadab, M., Ahmad, K. F. and Khan, K. (2019) "Retrofitting of Column" published in special issues by International Technical Innovation in Modern Engineering & Science (IJTIMES), UGC approved No: e-ISSN: 2455-2585.
- Vikash Singh, Samreen Bano and Syed Aqeel Ahmad (2020) "Use of Waste Tyre as Light Weight Backfill Material for Retaining Wall", in I – Manager's Journal of Structural Engineering (JSTE), March–May 2020 issue (Volume No. 9, Issue No. 1).
- **Singh, Vikash**, Sumit Kumar Chaudhary, Rajat Verma, Mohd Riyaz, Md Sajid, And Syed Aqeel Ahmad. "Harnessing Waste Glass Powder for Soil Modification." I-Manager's Journal on Civil Engineering 136, no. 3 (2024).

## BOOK EDITED/ AUTHORED

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- Vivek Tripathi, Saumya Singh, Vikash Sing and Asit Singh (2022) “Engineering Geology” Scientific International Publishing House (SIPH). ISBN No. – 978-93-5625-191-5, Year – 2022.

## BOOK CHAPTERS

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- Kumar, T. Udhaya, M. Goutham Priya, Aj Jeya Arthi, V. Singh, and Samreen Bano. "Factors Affecting Time and Cost Overruns in The Construction Projects and Its Control Techniques." Journal of the Balkan Tribological Association 28, No. 1 (2022). **(Scopus Indexing)**
- Janardhana, Kedri, Vikash Singh, Satyendra Narain Singh, TS Ramesh Babu, Samreen Bano, and Sampath Boopathi. "Utilization process for electronic waste in eco-friendly concrete: experimental study." In Sustainable Approaches and Strategies for E-Waste Management and Utilization, pp. 204-223. IGI Global, 2023. **(Scopus Indexing)**
- Syamala, Maganti, J. Malathi, Vikash Singh, Hari Priya GS, B. Uma Maheswari, and S. Murugan. "Cloud Solutions for Smart Parking and Traffic Control in Smart Cities." In Handbook of Research on AI and ML for Intelligent Machines and Systems, pp. 169-194. IGI Global, 2024. **(Scopus Indexing)**
- Vikash Singh et al. (2024) “Predicting Unconfined Compressive Strength in Stabilized Soil with RBI Grade 81 using Artificial Neural Network”. **CRC Press (India), Taylor & Francis, (Scopus Indexing)**.
- Vikash Singh et al. (2024) “Impact of NBA Implementation across Engineering Discipline”. **IGI Global, (Scopus Indexing)**.
- Vikash et al. (2024) “Building a Sustainable Future through an Innovation in Green Construction and Recycling Waste Material”. IGI Global, 2024. **(Scopus Indexing)**

## FACULTY DEVELOPMENT PROGRAM/SHORT TERM COURSE

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- Attended Five Days FDP on “Condition Assessment and Retrofitting of Civil Engineering Structure for Operational and Extreme Loads” conducted by the Centre for Continuing Education (IIT Kanpur) from October 21-25, 2019.
- Attended Five Days FDP on “Laboratory Experiments Using Virtual Lab in Civil Engineering” conducted by Madan Mohan Malaviya University of Technology, Gorakhpur from September 21-25, 2020.
- Attended Five Days FDP on “Advances in Structural and Geotechnical engineering” conducted by Government College of Engineering, Mumbai from June 29, 2020 to July 03, 2020.
- Attended Five Days FDP on “Outcome Based Education and Accreditation” conducted by IILM College of Engineering and Technology, Mumbai from May 25-29, 2020.

- Attended Five Days FDP on “Maximal Utilization of ICT Tools for Online Teaching-Learning Process” conducted by Rajkiya Engineering College, Ambedkar Nagar from May 09-13, 2020.
  - Attended One Week FDP on “NAAC Assessment & Accreditation (A&A) for Affiliated Colleges” conducted by Vinayakrao Patil Mahavidyalaya, Vijapur from June 08-13, 2020 under the U.G.C. Paramarsh Scheme.
  - Participated 5 days faculty development program on “Effective Teaching through Modern Technologies” organized by Integral University, Lucknow and the Association of Indian Universities from 04/03/2024 to 08/03/2024.
  - Participated AICTE Sponsored five days short term training program on “Structural Health Monitoring and Seismic Protection of Structure and Infrastructural Systems (Phase- 1)” conducted by Bannari Amman Institute of Technology, TamilNadu from July 06-11, 2020.
  - Participated AICTE Sponsored one-week short term training program on “Prospects of Future Research in Structural and Geotechnical Engineering” conducted by NIT, Jalandhar from September 07-11, 2020.
  - Participated AICTE Sponsored one-week short term training program on “Recent advancement in Concrete Technology” conducted by NIT, Jalandhar from September 15-19, 2020.
  - Participated One Week Short Term Training Program on “Geotechnics for Disaster Mitigation” jointly conducted by Indian Geotechnical Society (IGS) Suratkal, NIT Karnataka, IIT Tirupati and Kyushu University Japan from June 08-13, 2020.
  - Participated in 12 weeks Training Program on “NBA Accreditation Webinar Series” Organised by National Institute of Technical Teachers Training & Research, Bhopal.
  - Participated One Week Online Short-Term Course on “Sustainable Construction Practices” conducted by Department of Civil Engineering, IIT Indore from October 12-18, 2020.
  - Participated One Week Online Short-Term Course on “Sustainable Concrete Construction- Issues and Challenges” conducted by Department of Civil Engineering, NIT Jalandhar from October 26-30, 2020
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