

## BRIEF CURRICULUM VITAE

### Prof. Sandeep Chaudhary

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& Dean, Administration

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### Academic and Research Qualifications

Ph.D. (2006, Indian Institute of Technology Delhi, India) \*,

\*Ph.D. Thesis Title: Development of a hybrid analytical-numerical procedure and neural networks for composite structures subjected to service load

M.E. (Structural Engineering) (1999) (Malaviya National Institute of Technology Jaipur, Jaipur, India)

B.E. (Civil) (1996) (MBM Engineering College Jodhpur, Jodhpur, India)

### Work Experience

- Professor (HAG), Department of Civil Engineering, IIT Indore (Oct 23, 2024–Cont)
- Professor, Department of Civil Engineering, IIT Indore (Oct 23, 2018-Oct 22, 2024)
- Associate Professor, Department of Civil Engineering, IIT Indore (May 17, 2017-Oct 22, 2018)
- Associate Professor, Department of Civil Engineering, MNIT Jaipur (July 29, 2011-May 16, 2017)
- Post Doc. Research Fellow, Structural System Laboratory, Kunsan National University, South Korea (Aug 16, 2010-July 28, 2011)
- Associate Professor, Department of Civil Engineering, MNIT Jaipur (July 01, 2010-Aug 15, 2010)
- Lecturer/Reader, Department of Structural Engineering, MNIT Jaipur (Oct 31, 1996-June 30, 2010)

### Specialization

- Structural Engineering
- Steel Concrete Composite Construction
- Sustainable Construction Practices
- Building Product Engineering
- Waste Upcycling and Management
- Sustainable Rural Housing

### Research Credentials

Technology Transfer/ Translational Research:	01/02
Patents (granted/ published/filed/in process):	02/02/01/01
Publications in SCIE/Scopus Indexed Journals:	120
Publications in Conference Proceedings:	76
Books authored/edited:	08
Technical reports:	01
Book/ video chapters:	05
Ph.D. Supervision (completed/ongoing):	15/08

MTech and MSc thesis Awarded/Ongoing:	39/06
Sponsored Research Projects:	42
(PI/Scientific Director/Mentor/Co-PI/Guide)	(13/01/05/02/06)

### **Courses Taught**

Solid Mechanics, Structural Analysis, Finite Element Method, Design of Concrete Structures, Design of steel-concrete composite structures, Prestressed Concrete Design, Sustainable Construction\*, Advanced Concrete Technology\*, Design Thinking for Rural Application\*

\*Courses developed and introduced

### **Awards / Achievements / Recognitions / Fellowships**

- Received Best Technology Award 2024 from IIT Indore
- Honorary mention as the second-best teacher of IIT Indore based on the student feedbacks in the last four semesters, on the occasion of Teacher's Day, 2024
- Received Best Research Paper Award 2023 from IIT Indore
- Recognized as a leading scientist in the field of Sustainable Construction by Publons in 2022
- Eminent Engineer Award by The Institution of Engineers (India) during the 37th National Convention in 2022.
- Utkrisht Seva Samman (Excellent Service Award) by The Institution of Engineers (India), Indore and JK cement in 2021.
- Holds the first technology transfer of IIT Indore for waste-upcycled novel bricks
- Offered Research Fellowship by the Hong Kong Polytechnic University for two months in 2017.
- Post-Doctoral Research Fellowship granted by National Research Foundation, S. Korea (2010-2011).
- QIP Fellowship for pursuing Ph.D. at IIT Delhi by Ministry of Human Resources Development, Government of India (2002-2005).
- Merit Scholarship during B.E. (1993-1995).

### **List of sponsored research projects**

#### *As Principal Investigator (25)*

01. "Livelihood interventions for Scheduled Caste labourer through "Shramik Vikas" community partnered training programs in Simrol Block, Indore District, Madhya Pradesh State" funded by DST, GOI. (2025-2028). Role: As Principal Investigator. Collaborator: -.
02. "Advancing the Industrial Application of Epoxy Bonded Reinforcement" funded by Captain Steel India Limited. (2025-2026). Role: As Principal Investigator.
03. "Sustainable Cement Manufacturing: Overcoming Limestone Shortages with Bio Ash" funded by JSW Cement Ltd, Ballari, India. (2025-2026). Role: As Principal Investigator. Collaborator: -.
04. "Inspiring the researchers of tomorrow in sustainable concrete construction" funded by SPARC and UKIERI. (2024-2026). Role: As Principal Investigator. Collaborator: University of Plymouth, UK and NIT Warangal, India.
05. "Technology Dissemination of Compressed Colored Composite for a wide range of products to support sustainable rural infrastructure" funded by DST, GoI. (2023-2025). Role: As Principal Investigator. Collaborator: TIET Patiala, India.
06. "Carbon-neutral technologies for recycling large-tonnage waste from fuel energy with the production of functional geopolymer materials" funded by Government of the Russian Federation. (2022-2024). Role: As Principal Investigator. Collaborator: Platov South-Russian State Polytechnic University (NPI), Russia.

07. "A comprehensive rheology based thixotropic fluid flow model for improved control on 3D printing of concrete" funded by SERB, DST, GOI. (2021-2024). Role: As Principal Investigator. Collaborator: -.
08. "Safeguarding heritage structures using seismic metamaterials" funded by SPARC, MHRD. (2019-2021). Role: As Principal Investigator. Collaborator: UNIVERSITÉ AIX-MARSEILLE, France and IMPERIAL COLLEGE LONDON, UK.
09. "Investigation of cracks in concrete PSC Girder on Bridge no 10 in RAU to TIHI new Broad Gauge line section" funded by Western Railway. (2019). Role: As Principal Investigator. Collaborator: -.
10. "Natural-coloured functionally graded rubberised geopolymer system: A cement-less solution for optimised concrete paver manufacturing" funded by DST, GOI. (2018-2020). Role: As Principal Investigator. Collaborator: University of Edinburgh, UK.
11. "Investigations for structural safety of Mughal Museum being made by Precast Technique and subsequent technical suggestions" funded by U.P Rajkiya Nirman Nigam Ltd.. (2018-2019). Role: As Principal Investigator. Collaborator: -.
12. "Third Party Quality Assurance for Infrastructure of New Campus of IIM Udaipur" funded by CPWD. (2018). Role: As Principal Investigator. Collaborator: -.
13. "Sustainable and economical functionally graded rubberized concrete pavements" funded by DST, GOI. (2017-2021). Role: As Principal Investigator. Collaborator: University of Carthage, Tunisia.
14. "Vetting of Design and Drawing of 90 meter Arch, 252 meter suspension bridge & 90 meter truss bridge at Rajim, Raipur (C.G.)" funded by AQUATIC Pump Industries, Indore (India). (2017). Role: As Principal Investigator. Collaborator: -.
15. "Utilization of plastic waste in concrete: Feasibility studies" funded by DST, GOI. (2016-2019). Role: As Principal Investigator. Collaborator: MNIT Jaipur.
16. "Waste utilisation in concrete as aggregate: Asian perspective" funded by Asian Concrete Federation. (2016-2019). Role: As Principal Investigator. Collaborator: Researchers from China, Hong Kong and Thailand.
17. "Proof checking of structural design and drawing of bridge at Gambhiri river and ROB at Hindaun Bypass" funded by RSRDC Ltd., Jaipur. (2014-2016). Role: As Principal Investigator. Collaborator: -.
18. "Proof Checking of Structural Design/Drawings for C/o 500 Bedded Boys Hostel and 210 Bedded Girls Hostel with provision for future vertical extension on III floor" funded by CPWD, Jaipur. (2014-2015). Role: As Principal Investigator. Collaborator: -.
19. "Proof Checking of Structural Design of Multistoried residential apartment located at Sun-City, Jaipur-Bikaner Highway, Jaipur" funded by Apeksha Infrastructures Pvt. Ltd., Jaipur. (2014). Role: As Principal Investigator. Collaborator: -.
20. "Experimental and analytical studies for the short term and long term behavior of epoxy bonded steel-concrete composite bridges" funded by DST, GOI. (2012-2015). Role: As Principal Investigator. Collaborator: -.
21. "Proof checking of structural design and drawing of three ROB's at Makrana, Kishangarh and Ajmer in Rajasthan" funded by Multimedia Consultants Pvt. Ltd., Ahmadabad, India. (2012-2013). Role: As Principal Investigator. Collaborator: -.
22. "Technical evaluation/quality assessment of PQC mix for cement content" funded by Airport Authority of India, Jaipur. (2012-2013). Role: As Principal Investigator. Collaborator: -.
23. "Proof checking design of substructure of seventeen major railway bridges in the Swarupganj-Abu Road section of Ajmer division of north western railway" funded by Rail Vikas Nigam Limited. (2011-2012). Role: As Principal Investigator. Collaborator: -.
24. "Development of a highly efficient procedure and GUI equipped software for the service load analysis of composite structures" funded by DST, GOI. (2008-2011). Role: As Principal Investigator. Collaborator: -.
25. "Proof Checking of Various designs and drawings of Rajasthan Rural Water Supply and Mitigation Project" funded by Larsen & Toubro Limited. Ltd., Chennai. (-). Role: As Principal Investigator. Collaborator: -.

*As Scientist Mentor (6)*

01. "Innovative Waste-Derived and Eco-Friendly Alternatives to Alkali Activators in Geopolymer Concrete: Towards Sustainable Development" funded by DST, GOI. (2025-2027). Role: As Scientist Mentor. Collaborator: NPDF: Dr. Rudra Pratap Singh.
02. "GOBAiR - a novel cow dung based foaming agent for developing sustainable light weight construction materials" funded by IIT Indore. (2023-2024). Role: As Scientist Mentor. Collaborator: TRF: Dr. Sanchit Gupta.
03. "Innovative and sustainable fibre-reinforced recycled aggregate concretes for structural applications" funded by INSA, DST, GOI. (2023-2024). Role: As Scientist Mentor. Collaborator: ISRF: Dr. Thanongsak Imjai.
04. "Sustainable solution for limestone shortage in cement manufacturing through Ca-rich bio ash" funded by DST, GOI. (2022-2024). Role: As Scientist Mentor. Collaborator: NPDF: Dr. Ashita Singh.
05. "Durability studies on geopolymer concrete containing waste rubber fibre as partial replacement of sand" funded by DST, GOI. (2015-2017). Role: As Scientist Mentor. Collaborator: -.
06. "Durability of concrete containing zinc slag as partial replacement of sand" funded by DST, GOI. (2010-2013). Role: As Scientist Mentor. Collaborator: -.

*As Co-Principal Investigator (4)*

01. "Development of Portable Kit – An Alternative to Traditional Post Harvest Management Employing Photodynamic Inactivation" funded by AgriHub: Innovation Hub for Agriculture, IIT Indore. (2025-2027). Role: As Co-Principal Investigator.
02. "Sustainable building products for net zero in construction: from lab to market" funded by TNE Grant, British Council Going Global Partnerships. (2025-2026). Role: As Co-Principal Investigator. Collaborator: Overall Lead: Dr Reyes Garcia; Indian Lead Partner: Prof Sandeep Chaudhary; Collaborators: University of Warwick, UK; Concrete4Change Ltd, UK; Abhishek Bricks, India; JSW Cement, India;.
03. "Waste characterization and possible gainful utilization of induction melting furnace dust" funded by Jaideep Ispat & Alloys Pvt. Ltd., Moira Sariya, India. (2021-2022). Role: As Co-Principal Investigator. Collaborator: -.
04. "Utilization of Bamboo Strip as reinforcement in concrete" funded by TEQIP, MHRD. (2019-2020). Role: As Co-Principal Investigator. Collaborator: -.

*As a Guide (6)*

01. "PARVAT (Prevention of accidents in hilly routes by virtue of automated technology)" funded by DRISHTI-CPS, IIT Indore. (2023-2024). Role: As a Guide. Collaborator: Student PI: Himanshu Khati, Benjamin Basumatary.
02. "Real time quality control tool for fresh state concrete using a hydrostatic digital twin model" funded by DRISHTI-CPS, IIT Indore. (2022-2023). Role: As a Guide. Collaborator: Student PI: Parth Dwivedi.
03. "A digital twin based real time traffic regulation system for risk management and failure prevention in bridges" funded by DRISHTI-CPS, IIT Indore. (2022-2023). Role: As a Guide. Collaborator: Student PI: Ayush.
04. "A cyber physical system for low energy HVAC solutions based on natural thermal cycles and adaptive thermal comfort for smart cities" funded by DRISHTI-CPS, IIT Indore. (2022-2023). Role: As a Guide. Collaborator: Student PI: Sumer Thakur.
05. "Experimental investigations of bond characteristics of steel-concrete composite interface connected by adhesive bonding" funded by Institution of Engineers (India). (2015-2016). Role: As a Guide. Collaborator: Student PI: Pankaj Kumar.
06. "Performance evaluation of interlocking brick/block masonry" funded by Institution of Engineers (India). (2007-2008). Role: As a Guide. Collaborator: Student PI: Ahmed Naqvi.

*Other Projects (1)*

01. "Knowledge incubation for technical education under Technical Education Quality Improvement Program of MHRD" (-). Funded by: MHRD. Role: -

**Patents**

01. Gupta, S., Singh S., Thakare, A., Jha, H.C., Chaudhary, S. (*Granted, 2025*). "Food and bacteria blended powder as a bio-admixture for cement composites", Patent No. -, Application No. 202521035191A, Grant Date: -.
02. Thakare, A. A., Gupta, S., Rajpoot, S., Jha, H. C., and Chaudhary, S. (*Granted, 2025*). "Bacterial Mortar Composition and Process for Preparation Thereof by using Food Waste derived Nutrient Media", Patent No. -, Application No. 202521071253A, Grant Date: -.
03. Gupta, S., and Chaudhary, S. (*Granted, 2024*). "Cow dung-based lightweight construction materials and method", Patent No. -, Application No. 202421010279A, Grant Date: -.
04. Gupta, T., Chaudhary, S., Sharma, R. K., and Jain, S. (*Granted, 2020*). "Method of Preparation of Conplax Paver Block Utilizing waste Polythene", Patent No. 396218, Application No. 202011002264, Grant Date: May 5, 2022.
05. Authors: Gupta, T., Sharma, R. K., Chaudhary, S., and Siddique, S (*Granted, 2020*). "Composition for preparation of Paver Block utilizing rubber waste", Patent No. 385236, Application No. 202011018399, Grant Date: Dec. 27, 2021.

## List of publications

### Books Published

01. Gambhir, M. L., and **Chaudhary, S.** (2025). Concrete Technology: Theory and Practice. McGraw Hill. (ISBN: 9789364446969)
02. **Chaudhary, S.**, Patel, K. A.(2023). Testing & Evaluation of Civil Engineering Materials. AICTE (MoE). (ISBN: 9780128189610)
03. Hau, K. K., Gupta, A. K., **Chaudhary, S.**, Gupta, T. (Editors)(2022). Recent Advances in Structural Engineering and Construction Management - Select Proceedings of ICSMC 2021. Springer Singapore. (ISBN: 9789811940392)
04. Samui, P., Kim, D., Iyer, N., and **Chaudhary, S.** (Editors)(2020). New Materials in Civil Engineering. Butterworth-Heinemann, Elsevier. (ISBN: 9780128189610)
05. Pancharathi, R.K., Sangoju, B., and **Chaudhary, S.** (Editors)(2020). Lecture Notes in Civil Engineering: Advances in Sustainable Construction Materials - Select Proceedings of ASCM 2019. Springer Singapore. (ISBN: 9789811533631)
06. **Chaudhary, S.**, and Tripathi, B. (Editors)(2013). Current Challenges in Structural Engineering. (ISBN: 97998382880738)
07. Misra, A., and **Chaudhary, S.** (Editors)(2009). Sustainable Concrete Infrastructure Development. (ISBN: 9788190872317)
08. **Chaudhary, S.**, Tiwari, S. K., and Chaudhary, M. (Editors)(2007). Recent trends in Geotechnical and Structural Engineering. (ISBN: )

### SCI/ SCI-E Journal Publications (120)

01. Singh, A., Panghal, H., Bhadauria, S. S., and **Chaudhary, S.**(2025). "Valorization of De-oiled Sesame and Sunflower Seed Residues as Sustainable Alternatives to Limestone and Supplementary Cementitious Materials in Cement Matrices". *Journal of Sustainable Cement-Based Materials*, .
02. Singh, A., Baghel, S. S., Bhadauria, S. S., and **Chaudhary, S.**(2025). "Mechanochemical Treatment of Low-Alkali Activated Slag Concrete: A Comparative Study of Potassium and Sodium Activators". *Journal of Materials in Civil Engineering, ASCE*, 37(11), 04025409.
03. Lazorenko, G., Kasprzhitskii, A., and **Chaudhary, S.**(2025). "One-step microwave preparation of phosphoric acid activated foams from spontaneous combustion coal gangue". *Journal of Industrial and Engineering Chemistry*, .
04. Panghal, H., **Chaudhary, S.**, and Kumar, A. (2025). "Enhancing sustainable concrete performance: dual treatment of recycled coarse aggregates for improved strength and durability". *European Journal of Environmental and Civil Engineering*, 29(15), 3225–3256.
05. Lazorenko, G., Kasprzhitskii, A., Yatsenko, E.A., Wensheng, L., and **Chaudhary, S.**(2025). "Towards coal mining waste valorization: Gangue as resource for the production of geopolymer and related alkali-activated materials". *Green Technologies and Sustainability*, 3(3), 100205.

06. Singh, A., Panghal, H., Rath, D. K., Kumar, R., and **Chaudhary, S.**(2025). "Evaluating the potential of oil seed extract ashes from niger, cotton, and flaxseed as sustainable supplementary cementitious materials". *Sustainable Energy Technologies and Assessments*, 76, 104285.
07. Sharma, A., Gupta, S., Husain, M.N., and **Chaudhary, S.**(2025). "Factors affecting the rheology of cement-based composites: A review". *Journal of American Ceramic Society*, 108(6), e20429.
08. Gupta, S., Rajpoot, S., Thakare, A. A., Jha, H. C., and **Chaudhary, S.**(2025). "Upcycling Food Wastes as a Cost-Effective Nutrient Media in Bacterial Rubberized Mortar for Carbon Sequestering". *Waste and Biomass Valorization*, 16, 4939-4953.
09. Dicha, H.M., **Chaudhary, S.**, Husain, M. N., and Krishnaraj, R. (2025). "Banana fibre-reinforced diatomaceous earth slurry treatment of recycled aggregate for enhanced structural concrete performance". *Scientific Reports*, 14, 4717.
10. Modi, M.A., Patel, K.A., and **Chaudhary, S.**(2025). "Prediction of deflection considering cracking and temperature gradient effects in steel-concrete composite girders". *Structural Engineering and Mechanics*, 93(1), 65-82.
11. Parolkar, R., and **Chaudhary, S.**(2025). "Dynamic duo: Understanding the interplay between fatigue and freeze-thaw in concrete durability". *Construction and Building Materials*, 489, 142309.
12. Jain, A., Maaze, M. R., Sachdeva, N., **Chaudhary, S.**and Gupta, R. (2025). "Optimizing granite waste aggregate content in self-compacting concrete using multi criteria decision approach". *Sustainable Chemistry and Pharmacy*, 46, 102093.
13. Sharma, A. and **Chaudhary, S.**(2025). "Experimental Investigations and Development of a Comprehensive Rheological Model for Cement Paste: A Novel Integration of Thixotropic Behavior and Hydration Effects". *Journal of Structural Design and Construction Practice*, .
14. Modi, M. A., Ramnavas, M. P., Patel, K. A., and Chaudhary S. (2025). "Analytical Approach for Predicting Deflection in Composite Deck Slabs Subjected to Service Load". *Journal of Structural Design and Construction Practice*, 31(1), 04025103.
15. Sharma, A., **Chaudhary, S.**(2025). "Time-resolved rheological characterization of cement paste using a distinct shear protocol: quantifying thixotropic and hydration-driven structuration". *Innovative infrastructure solutions*, 10, 487.
16. Modi, M.A., Patel, K.A., and **Chaudhary, S.**(2024). "Assessment of cracking, creep and shrinkage effects in indeterminate steel-concrete composite flexural members at service load". *Structures*, 70, 107663.
17. Imjai, T., Aosai, P., Garcia, R., Raman, S.N., and **Chaudhary, S.**(2024). "Deflections of high-content recycled aggregate concrete beams reinforced with GFRP bars and steel fibres". *Engineering Structures*, 312, 118247.
18. Kefyalew, F., Imjai, T., Garcia, R., Son, N.K., and **Chaudhary, S.**(2024). "Performance of recycled aggregate concrete composite metal decks under elevated temperatures: a comprehensive review". *Journal of Asian Architecture and Building Engineering*, 24(2), 683–705.
19. Neupane, R. P., Imjai, T., Garcia, R., Chua, Y. S., and **Chaudhary, S.**(2024). "Performance of eccentrically loaded low-strength RC columns confined with posttensioned metal straps: An experimental and numerical investigation". *Structural Concrete*, 25(5), 3583-3599.
20. Singh, A., Thakare, A. A., and **Chaudhary, S.**(2023). "A case study on examining the fresh-state behavior of self-compacting mortar containing waste powders from various sources". *Case Studies in Construction Materials*, e02684.
21. Srimuang, K., Imjai, T., Kefyalew, F., Raman, S. N., Garcia, R., and **Chaudhary, S.**(2023). "Thermal and acoustic performance of masonry walls with phase change materials: A comparison of scaled-down houses in tropical climates". *Journal of Building Engineering*, 108315.
22. Kumar, P., Kasar, A. A., and **Chaudhary, S.**(2023). "Numerical Analysis of Interfacial Failure Mechanism in Bonded Steel–Concrete Composite Connections". *International Journal of Steel Structures*, 23, 1279-1293.

23. Gupta, S., Agrwal, H., and **Chaudhary, S.**(2023). "Thermo-mechanical treatment as an upcycling strategy for mixed recycled aggregate". *Construction and Building Materials*, 398, 132471.
24. Jain, A., Gupta, R., Gupta, S., and **Chaudhary, S.**(2023). "Evaluation of real time fire performance of eco-efficient fly ash blended self-consolidating concrete including granite waste". *Journal of Building Engineering*, 77, 107533.
25. Singh, A., Bhadauria, S. S., Thakare, A. A., Kumar, A., Mudgal, M., and **Chaudhary, S.**(2023). "Durability assessment of mechanochemically activated geopolymer concrete with a low molarity alkali solution". *Case Studies in Construction Materials*, e02715 /20.
26. Neupane, R. P., Imjai, T., Makul, N., Garcia, R., Kim, B., and **Chaudhary, S.**(2023). "Use of recycled aggregate concrete in structural members: a review focused on Southeast Asia". *Journal of Asian Architecture and Building Engineering*, 24(3), 1197–1220.
27. Thakare, A. A., Siddique, S., Singh, A., Gupta, T., and **Chaudhary, S.**(2022). "Effect of rubber fiber size fraction on static and impact behavior of self-compacting concrete". *Advances in Concrete Construction*, 13(6), 433-450.
28. Jain, P., Gupta, R., and **Chaudhary, S.**(2022). "Comprehensive assessment of ceramic ETP sludge waste as a SCM for the production of concrete". *Journal of Building Engineering*, 104973.
29. Thakare, A. A., Singh, A., Gupta, T., and **Chaudhary, S.**(2022). "Effect of size variation of fibre-shaped waste tyre rubber as fine aggregate on the ductility of self-compacting concrete". *Environmental Science and Pollution Research*, 30, 20031–20051.
30. Jain, A., Choudhary, S., Gupta, R., **Chaudhary, S.**, and Gautam, L. (2022). "Effect of granite industry waste addition on durability properties of fly ash blended self-compacting concrete". *Construction and Building Materials*, 340, 127727.
31. Jain, A., **Chaudhary, S.**, Choudhary, S., and Gupta, R. (2022). "Resistance of fly ash blended self-compacting concrete incorporating granite powder against acid and sulphate environments". *Arabian Journal of Geosciences*, 15, 1156.
32. Gupta, S., and **Chaudhary, S.**(2022). "State of the art review on supplementary cementitious materials in India – II: Characteristics of SCMs, effect on concrete and environmental impact". *Journal of Cleaner Production*, 357, 131945.
33. Muttil, N., **Chaudhary, S.**, Prasad, E. K., and Singh, S. K. (2022). "Waste tyre recycling: An emerging applications with a focus on permeable pavements". *Indian Journal of Engineering and Material Sciences*, 29(6), 707-713.
34. Thakare, A. A., Gupta, T., Deevan, R., and **Chaudhary, S.**(2022). "Micro and macro-structural properties of waste tyre rubber fibre-reinforced bacterial self-healing mortar". *Construction and Building Materials*, 322, 126459.
35. Jain, A., **Chaudhary, S.**, and Gupta, R. (2022). "Mechanical and microstructural characterization of fly ash blended self-compacting concrete containing granite waste". *Construction and Building Materials*, 314 (Part A), 125480.
36. Gupta, S., Singh, D., Gupta, T., and **Chaudhary, S.**(2022). "Effect of limestone calcined clay cement (LC3) on the fire safety of concrete structures". *Computers and Concrete*, 27(4), 263-278.
37. Bhardwaj, A., Nagpal, A. K., **Chaudhary, S.**, and Matsagar, V. (2021). "Effect of location of load on shear lag behavior of bonded steel-concrete flexural members". *Steel and Composite Structures*, 41 (1), 123-136.
38. Jain, A., Sharma, N., Choudhary, N., Gupta, R., and **Chaudhary, S.**(2021). "Utilization of non-metalized plastic bag fibers along with fly ash in concrete". *Construction and Building Materials*, 291, 123329.
39. Choudhary, S., Gupta, R., Jain, A., and **Chaudhary, S.**(2021). "Experimental Investigation of Rubberized Functionally Graded Concrete". *Revue des Composites et des Matériaux Avancées*, 31 (1), 1-11.
40. Kumar, S., Patel, K. A., **Chaudhary, S.**, and Nagpal, A. K. (2021). "Rapid prediction of long-term deflections in steel-concrete composite bridges through a neural network model". *International Journal of Steel Structures*, 21, 590–603.

41. Vasic, V. M., Pezo, L., Gupta, V., **Chaudhary, S.**, and Radozevic, Z. (2021). "An artificial neural network-based prediction model for utilization of coal ash in production of fired clay bricks: A review". *Science of Sintering*, 53, 37-53.
42. Singh, G.K., Patel, K. A., **Chaudhary, S.**, and Nagpal, A. K. (2021). "Methodology for rapid estimation of deflections in two-way reinforced concrete slabs considering cracking". *Journal of Structural Design and Construction Practice-ASCE*, 26(2).
43. Siddique, S., Gupta, V., **Chaudhary, S.**, Park, S., and Jang, J. G. (2021). "Influence of the precursor, molarity and temperature on the rheology and structural buildup of alkali-activated materials". *Materials*, 14(13), 3590.
44. Choudhary, S., Singh, A., Jain, A., Gupta, R., and **Chaudhary, S.**(2021). "Effect of Fiber Volume Fraction of Waste Originated Tire Fiber and w/c Ratio on Mechanical Properties of Functionally Graded Concrete". *Iranian Journal of Science and Technology, Transactions of Civil Engineering*, 46, 2791–2808.
45. Gupta, V., Pathak, D. K., Kumar, R., Miglani, A., Siddique, S., and **Chaudhary, S.**(2021). "Production of colored bi-layered bricks from stone processing waste: structural and spectroscopic characterization". *Construction and Building Materials*, 278, 122339.
46. Gupta, T., Siddique, S., Sharma, R. K., and **Chaudhary, S.**(2021). "Investigating mechanical properties and durability of concrete containing recycled rubber ash and fibers". *Journal of Material Cycles and Waste Management*, 1-13.
47. Bhardwaj, A., Matsagar, V., Nagpal, A. K., and **Chaudhary, S.**(2020). "Bond Behavior in Flexural Members: Numerical Studies". *International Journal of Steel Structures*, 21, 225-243.
48. Gupta, T., Siddique, S., Sharma, R. K., and **Chaudhary, S.**(2020). "Effect of aggressive environment on durability of concrete containing fibrous rubber shreds and silica fume". *Structural Concrete*, 1-13.
49. Gupta, V., Pathak, D., Siddique, S., Kumar, R., and **Chaudhary, S.**(2020). "Study on the mineral phase characteristics of various Indian biomass and coal fly ash for its use in masonry construction products". *Construction and Building Materials*, 235, 117413.
50. Gupta, S., and **Chaudhary, S.**(2020). "State of the art review on Supplementary Cementitious Materials in India – I: An overview of legal perspective, governing organizations, and development patterns". *Journal of Cleaner Production*, 261, 121203.
51. Gupta, V., Pathak, D. K., **Chaudhary, S.**, and Kumar, R. (2020). "Raman Imaging for Measuring Homogeneity of Dry Binary Blend: Combining Microscopy with Spectroscopy for Technologists". *Analytical Science Advances*, 1(2), 89-96.
52. Jain, A., Gupta, R., and **Chaudhary, S.**(2020). "Influence of granite waste aggregate on properties of binary blend self-compacting concrete". *Advances in Concrete Construction*, 10, 127-140.
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62. Kumari, S., and **Chaudhary, S.** (2010). "Strengthening of Steel-concrete composite beams". *Proc. International conference on Innovative World of Structural Engineering (ICIWSE-2010)*, Aurangabad, India, December 25-27, 2010.
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66. **Chaudhary, S.**, and Nagpal, A. K. (2009). "Analysis and behaviour of composite structures at service load". *Proc., Int. Conf. Advances in Concrete, Structural and Geotechnical Engineering*, Pilani, India, October 25-27, 2009.
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74. **Chaudhary, S.**, and Gupta, R. C. (2002). "Effect of grouting and reinforcement on hollow block masonry". *Proc., National Seminar on Recent Trends in Civil Engineering*, MBM Engg. College, Jodhpur, India, Feb. 22-23, 2002.
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01. Gupta, S., and **Chaudhary, S.**(2024). "Conventional and Emerging Materials Used in FRP-Concrete Composites for Earthquake Resistance". In *RC Structures Strengthened with FRP for Earthquake Resistance*, 193-205. (ISBN: 978-981-97-0101-8)
02. **Chaudhary, S.** (2022). "Sustainable Construction". In *Technology of Home Knowledge Series – MASTERCLASS, created by Association of Infrastructure Industry (India) and JK Cement Limited*, . (ISBN: )
03. Gupta, S., and **Chaudhary, S.**(2021). "Large Scale Waste Utilisation in Sustainable Composite Materials for Structural Applications". In *Emerging Trends of Advanced Composite Materials in Structural Applications*, 169–177. (ISBN: 9789811616884, 9811616884)
04. Gupta, S., and **Chaudhary, S.**(2020). "Use of Fly Ash for the Development of Sustainable Construction Materials". In *New Materials in Civil Engineering*, 677–689. (ISBN: ““sf #f “ sS2Â #f “ sS”•
05. Mandolia, R., Siddique, S., and **Chaudhary, S.**(2020). "Effect of Different Hydrophobic Treatments on Properties of Recycled Aggregate Concrete". In *Lecture Notes in Civil Engineering*, 121–130. (ISBN: 9789811533631)

## Translational Contributions



#### *Naturally Colored Bi-layer Bricks (2021-2022) Technology Transferred*

Developed a novel, naturally coloured bi-layer brick by upcycling dimensional stone processing waste. The novel building product offers three key advantages: (i) environment-friendly, safely disposes of the dimensional stone processing waste, which is a major concern in Rajasthan; (ii) economic, costs lower than the conventional painted masonry wall; and (iii) aesthetically pleasing, natural colouring provides an appealing look to the product. The Technology has been successfully transferred to M/s Abhishek Bricks, Indore, M. P., India, for the period 2022-2025 and is the first technology transfer from IIT Indore (Amount 3.00 Lakh+2% royalty).

#### *GOBAiR™ - a cow dung based foaming agent (2024-2025)*

Developed a first-of-its-kind foaming agent using cow dung, named GOBAiR. The novel foaming agent is a low-cost environment friendly alternative to commercially available foaming agents. The foaming agent has been used to prepare sustainable lightweight bricks. Field trials have been conducted across multiple cities for manufacturing and testing of lightweight bricks, with different industry partners.

#### *Kapila – process of producing handicraft material using cow dung (2023-2024)*

Developed a process of producing handicraft materials using cow dung as the raw material. The developed process can stabilize 100% pure cow dung, i.e., without any additive. The process is designed to promote cow dung as an alternative material for handicraft industry, and provide a second revenue stream for rural communities. A training workshop has been conducted and developed products are currently undergoing market fit trials at the commercial establishment of IIT Indore.

#### **Professional Affiliations**

- Fellow of the Indian Association of Structural Engineers (India). F530
- Fellow of the Institution of Engineers (India). F1268025
- Life Member of Indian Concrete Institute, Chennai (India). LM8595
- Life Member of The Indian Society for Technical Education. LM 36714
- Member of RILEM technical committee 273-RAC, Structural behavior and innovation of recycled aggregate concrete.
- Member of the Indian Green Building Council. (2022-2023) IGBC - IM - 1100283
- Member, Fire and Security Association of India. (2022-2025) IDR-I-0322-1197
- Member, Indian Road Congress, 2023-2024 Member Ship No. 402431

#### **Administrative Positions Held**

- Dean, Administration, Indian Institute of Technology (IIT) Indore (Feb 20, 2023 – present)
- Scientific Supervisor, Fuel Energy Waste Recycling Lab, South-Russian State Polytechnic University, NPI, Russia (June 2022 – present)
- Head/Professor-Incharge, Centre for Rural Development and Technology, Indian Institute of Technology (IIT) Indore (April 2020 –April 2023)
- Head, Department of Civil Engineering, Indian Institute of Technology (IIT) Indore (October 2017-March 2019)
- Associate Dean, Planning-III, Indian Institute of Technology (IIT) Indore (September 2017-March 2019)
- Coordinator, Technical Education Quality Improvement Programme (TEQIP), Indian Institute of

Technology (IIT) Indore (September 2017 – October 2018)

- Associate Dean, Planning & Development, Malaviya National Institute of Technology (MNIT), Jaipur (June 2016 – May 2017)
- Associate Dean, Research & Consultancy, Malaviya National Institute of Technology (MNIT), Jaipur (November 2013 – May 2016)
- Associate Dean, Academic, Malaviya National Institute of Technology (MNIT), Jaipur (March 2012 – November 2013)
- Core Committee Member/Hub Governing Body Member/Strategic Task Force Member, DRISHTI CPS Foundation, Technology Innovation Hub, Indian Institute of Technology (IIT) Indore (August 2020-contd.)

### **Facilities and Centres established**

- Fuel Energy Waste Recycling Lab at the South-Russian State Polytechnic University, NPI, Russia, as Scientific Supervisor, under the Mega Grant received by the Government of Russian federation
- Centre for Rural Development and Technology (CRDT) at the Indian Institute of Technology Indore, as founding Head
- DRISHTI-CPS Technology Innovation Hub at the Indian Institute of Technology Indore, as founding team Member
- Centre for TEQIP-III at the Indian Institute of Technology Indore, as founding Coordinator
- Department of Civil Engineering at the Indian Institute of Technology Indore, as founding Head

### **Conferences Organised**

01. Joint Organising Secretary of National Conference on Sustainable Concrete Infrastructure Development 2009, May. 19-20, 2009, by Indian Concrete Institute and MNIT Jaipur, Jaipur.
02. Symposium Chair of Fifth Asia and Pacific Young Researchers and Graduates Symposium on “Current Challenges in Structural Engineering”, October 15-16, 2013, MNIT Jaipur.
03. Co-Convener of 8th International Congress on Computational Mechanics and Simulation, December 09-11, 2022, by Indian Association for Computational Mechanics, IIT Indore.
04. Chairperson of Rural Innovators Conclave II, 2025, March 21-22, 2025, Centre for Rural Development and Technology (CRDT), IIT Indore.
05. Co-Convener of 1st International Symposium on Materials for Sustainable Development (ISMSD 2024), December 20-21, 2024, organised under SPARC, IIT Indore.
06. Chairperson of Rural Innovators Conclave 2024, January 05-06, 2024, Centre for Rural Development and Technology (CRDT), IIT Indore.
07. Co-Convener of International Conference on Applied Mathematics and Mechanics (ICAMM 2023), October 18-20, 2023, IIT Indore.

### **Workshops Organised**

01. Organising Secretary and Convenor of National Seminar on Recent Trends in Geotechnical and Structural Engineering, December 22-23, 2007, MNIT Jaipur.
02. Coordinator of Training Program on Active Learning: Phase B for JEC Jabalpur and MITS Gwalior faculty members, June 18-22, 2018, IIT Indore.
03. Coordinator of Training Program on Active Learning: Phase C for faculty members of MITS Gwalior and GEC Sundarnagar, June 25-29, 2018, IIT Indore.

04. Coordinator of Short Term Course on Sustainable Construction Practices, October 13-15, 2019, IIT Indore.
05. Coordinator of Short Term Course on Precast and Prefabricated Buildings, January 27-31, 2020, IIT Indore.
06. Coordinator of QIP Short Term Course on Sustainable Construction Practices, October 12-18, 2020, IIT Indore.
07. Coordinator of AICTE ATAL Faculty Development Program on Sustainable Construction Technology, July 26-30, 2021, IIT Indore.
08. Coordinator of Short Term Course on Low-Cost Housing for Rural Development, June, 12-14, 2021, IIT Indore.
09. Indian Lead of One-month short-term training program as part of a joint international research capacity building program, under the project titled “Inspiring the researchers of tomorrow in sustainable concrete construction”, jointly organised by IIT Indore, India, and UoP, UK, sponsored project by SPARC and UKERI, July 13, 2024, to August 09, 2024, IIT Indore.
10. Coordinator of Training Program on Active Learning: Phase A for faculty members of JEC Jabalpur, June 11-15, 2018, IIT Indore.
11. Coordinator of Workshop on AUTOCAD, September 20-21, 2008, under TEQIP, MNIT Jaipur.
12. Coordinator of AUTOCAD workshop, October 23- 24, 2009, MNIT Jaipur.
13. Coordinator of Online Workshop on Mechanics of Metamaterials, January 18 & 25, 2021, IIT Indore.
14. Coordinator of Workshop on Local Waste Utilisation in Rural Construction Activities, December 07, 2021, IIT Indore.
15. Coordinator of Workshop on Emerging Trends in Sustainable Construction, March 26-27, 2022, under SERB, IIT Indore.
16. Coordinator of Short Term Faculty Development Programme on “Numerical & Computational Techniques in Engineering”, December 17-22, 2012, MNIT Jaipur.
17. Coordinator of TEQIP-funded staff development programme on “Finite Element Method”, July 09-13, 2007, MNIT Jaipur.
18. Coordinator of Training programme for Rajasthan Housing Board Engineers on “Multistoried Residential Apartments”, December 08-09, 2007, MNIT Jaipur.
19. Coordinator of MHRD/AICTE sponsored summer school on “Management and Mitigation of Natural Disasters”, July 14-26, 2008, MNIT Jaipur.
20. Coordinator of Two-week MHRD/AICTE sponsored winter school on “Soft Computing Skills in Engineering”, December 11-24, 2008, MNIT Jaipur.
21. Coordinator of Technical Orientation Programme on “Construction of Bridge, CD Works, ROB and RUB for Urban Areas” for RUIDP Engineers, February 24-26, 2012, MNIT Jaipur.
22. Coordinator of Technical Orientation Programme on “Soil & Other Material Properties and Base Map for Urban Infrastructure” for RUIDP Engineers, June 22-24, 2012, MNIT Jaipur.
23. Coordinator of Short-Term Training Programme on “Natural Disaster Management”, October 29-31, 2012, MNIT Jaipur.
24. Coordinator of Technical Orientation Programme on “Soil & Other Material Properties and Base Map for Urban Infrastructure” for RUIDP Engineers, December 21-23, 2012, MNIT Jaipur.
25. Coordinator of Short Term Training Programme on “Building Materials Characterisation & Testing”, June 1-5, 2015, MNIT Jaipur.
26. Coordinator of Short Term Training Programme on “Building Materials Characterisation & Testing”, June 06-10, 2016, MNIT Jaipur.
27. Coordinator of Short Term Training Programme on “Precast and Prefabricated Buildings”, December 26-30, 2016, MNIT Jaipur.

28. Coordinator of Faculty Induction Workshop: Phase A for faculty members of UEC Ujjain and SGSITS Indore, January 17-21, 2018, IIT Indore.
29. Coordinator of Faculty Induction Workshop: Phase B for faculty members of JEC Jabalpur and SGSITS Indore, January 23-27, 2018, IIT Indore.
30. Coordinator of Faculty Induction Workshop: Phase C for faculty members of REC Rewa, SATI Vidisha, SEI Pithoragarh and SGSITS Indore, January 29, 2018 - February 02, 2018, IIT Indore.
31. Coordinator of Short Course on Recent Advances in Geotechnical and Structural Engineering, March 8-10, 2018, IIT Indore.
32. Coordinator of Workshop on Preservation and Protection of Heritage Structures, September 16-17, 2023, under SPARC, IIT Indore.
33. Coordinator of Workshop on Metamaterials, March 26, 2023, under SPARC, IIT Indore.
34. Coordinator of Workshop on Properties of Fresh Concrete, March 24-25, 2023, under SERB, IIT Indore.

### **International Collaborations**

- University of Plymouth, UK
- Imperial College London, UK
- King Mongkut's University of Technology Thonburi, Thailand
- Northeastern University, Boston, USA
- Rostov State Transport University, Russia
- South-Russian State Polytechnic University, NPI, Russia
- The Hong Kong Polytechnic University, Hong Kong
- Université Aix- Marseille, France
- University of Carthage, Tunisia
- University of Edinburgh, UK
- University of Plymouth, UK
- Walailak University, Thailand
- Zhejiang University, China

### **Major Outreach (Intl/Natl Contributions)**

#### *International Contributions*

01. Associate Editor - Journal of The Institution of Engineers (India): Series A, Springer
02. International Scientific Committee Member - 10th International Symposium on Innovation & Utilization of High-Performance Concrete
03. Session Chair - 7th International Conference of Asian Concrete Federation on Sustainable Concrete
04. Chair - Technical Committee 1: Design of the Asian Concrete Federation
05. International Steering Committee Member - The 9th Asia-Pacific Young Researcher Graduate Symposium 2019
06. International Steering Committee Member - The 10th Asia-Pacific Young Researcher Graduate Symposium 2019
07. Secretary - Technical Committee on "Life Cycle Maintenance of Concrete Infrastructures (TC-LCM)" of Asian Concrete Federation
08. International Steering Committee Member - The 4th Asia-Pacific Young Researcher Graduate Symposium 2012
09. Session Chair - The 6th Asia-Pacific Young Researcher Graduate Symposium 2014

10. International Steering Committee Member - The 7th Asia-Pacific Young Researcher Graduate Symposium 2015
11. Scientific Committee Member - 3rd ACF Symposium on Assessment and Intervention of Existing Structures
12. International Steering Committee Member - The 8th Asia-Pacific Young Researcher Graduate Symposium 2017
13. International Steering Committee Member - The 6th Asia-Pacific Young Researcher Graduate Symposium 2014
14. Chair - The 5th Asia-Pacific Young Researcher Graduate Symposium 2013
15. Invited Lecturer - International Symposium on "Structural Assessment and Remediation of Infrastructure"
16. Associate Editor - "Cleaner Materials", Elsevier
17. Chairman - Expert Advice Group of Scientific School "Green Future" for young scientists
18. Session Chair - The 7th Asia-Pacific Young Researcher Graduate Symposium 2015
19. Co-Chairman - Mini Symposium on Durability and Life Cycle Maintenance of Structure

*National Contributions*

01. Member - Expert Committee of All India Council for Technical Education
02. AICTE Representative - All India Council for Technical Education
03. Member - Construction and Related Engineering Services Sectional Committee of Bureau of Indian Standards, New Delhi
04. Member - Pre Construction Services Sub Committee SSD 06: 01
05. Convener - Panel for Preparing Roadmap, SSD 06/P1, Bureau of Indian Standards, New Delhi
06. Expert - Selection Boards of Public Service Commission of different states of India
07. Member - Working Group (WG02) for revision of IS 1542: 1992 Sand for Plaster – Specification