

CURRICULUM VITAE

Dr. G Bharath

Designation: Sr. Scientist
Flexible Pavement Division,
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ACADEMIC QUALIFICATIONS

- July, 2011 – August 2016 | PhD in Civil Engineering (Pavement Engineering) | **Indian Institute of Technology, Kharagpur**, India (Thesis Title: *Performance Characteristics of Bituminous Mixtures Containing Recycled Asphalt Pavement Material*) under the guidance of Prof K. S. Reddy (IIT Kharagpur, India) and Prof Vivek Tandon (**University of Texas, El Paso, USA**)

(The work, carried out at two universities: IIT Kharagpur and University of Texas at El Paso, USA, pertains to the detailed understanding of the design and performance hot recycled bituminous mixes. Different issues related to the use of high RAP content in bituminous mixes were examined in this work)

- July, 2009 – May, 2011 | Master of Technology (Transportation Engineering) | **Indian Institute of Technology, Kharagpur**, India (**CGPA: 9.42**) (Thesis Title: *Evaluation of Dynamic Modulus Values of Bituminous Mixes for Mechanistic Empirical Pavement Design*) under the guidance of Prof M.A. Reddy

(The work relates to the development of correlations for estimation of the dynamic modulus value of bituminous mixes from resilient modulus based on extensive tests conducted on bituminous mixes for their resilient and dynamic moduli under different temperature and frequency conditions. The dynamic modulus is an essential input for the Mechanistic-empirical pavement design guide – AASHTO, 2002)

- July, 2005 – May, 2009 | Bachelors of Engineering (Civil Engineering) | **SRKR Engineering College, affiliated to Andhra university**, Bhimavaram, India (Percentage: 83%) – **Topper in Andhra University**

PROFESSIONAL EXPERIENCE

Post	Institute	Time Duration
Sr. Scientist <i>(Promoted on Merit)</i>	CSIR -Central Road Research Institute	June 2019 to Till Date
Scientist	CSIR -Central Road Research Institute	June 2016 to June 2019

RESEARCH PUBLICATIONS

Publications in Journals

1. Bharath, G., Reddy, K. S., Vivek Tandon, & Amaranatha Reddy, M. (2018). Estimation of blending of RAP binder in a recycled asphalt pavement mix. *Journal of Materials in Civil Engineering, ASCE, USA*, 30(8).
2. Bharath, G., Manoj Shukla, M. N. Nagabushana, Satish Chandra, & Amit Shaw. (2019). Laboratory and field evaluation of cement grouted bituminous mixes. *Road Materials and Pavement Design, Taylor and Francis*, 21(6).
3. Bharath, G., Reddy, K. S., Vivek Tandon, & Amaranatha Reddy, M. (2019). Aggregate gradation effect on fatigue performance of recycled asphalt mixtures. *Road Materials and Pavement Design, Taylor and Francis*, 22(1).
4. Sourabh, M., Gurunath, G., Bharath, G., & Kranthi, K. (2020). An investigation into the influence of aging and rejuvenation on surface free energy components and chemical composition of bitumen. *Construction & Building Materials*, 245, 118378.
5. Kranthi, K., & Bharath, G. (2019). Viscoelastic characterization of cold recycled bituminous mixtures. *Construction & Building Materials, Elsevier*, 199, 298-306.
6. Manoj, S., Bharath, G., M. N. Nagabushana, Satish Chandra, Amit Shaw, & Shankh Das. (2021). Design and evaluation of mechanical properties of cement grouted bituminous mixes (CGBM). *Construction & Building Materials, Elsevier*, 269, 121805.
7. Gurunath, G., Chethan, Bharath, G., & Kranthi, K. (2021). Effectiveness of different categories of rejuvenators in recycled asphalt mixtures. *Journal of Transportation Engineering, Part B: Pavements, ASCE*, 147(2).
8. Purbayan, G., Bharath, G., & Kranthi, K. (2021). Permanent deformation behaviour of foamed bitumen stabilised mixes. *Journal of Materials in Civil Engineering, ASCE*, 33(7), 04021146.
9. Bharath, G., Ramya, M., Reddy, K. K., & Reddy, K. S. (2022). A method for the determination of mixing temperatures of different components of recycled hot mix asphalt mixtures. *International Journal of Pavement Research and Technology, Springer*.
10. Ambika Behl, Bharath, G., & Satish Chandra. (2021). Characterization of fatigue resistance of warm mix binders using linear amplitude sweep test. *International Journal of Pavement Research and Technology, Springer*, SN 1997-1400.
11. Bharath, G., Reddy, K. S., Vivek Tandon, Amaranatha Reddy, M., & Ramya, M. (2021). Restriction of RAP% in HMA based on aggregate gradation and binder properties. *CivilEng*, 2(3), 811-822.
12. Bharath, G., & M. Amaranatha Reddy. (2018). Estimation of dynamic modulus values of bituminous mixes from repeated indirect tensile test. *Indian Highways, Indian Road Congress*, 46(7).
13. Manoj, S., Bharath, G., Pritam B, Nagabushana M. N., & Satish Chandra. (2020). Performance evaluation of cement grouted bituminous mix (CGBM) with various bituminous binders. *Indian Highways, Indian Road Congress*, 48(9).
14. Arun Chand, M. V., Bharath, G., Patel Chintankumar K, & B. B. Pandey. (2011). Design of concrete pavements – A mechanistic empirical approach. *Indian Highways, Indian Road Congress*, 6.
15. Bharath, G., Vijay Kakade, K. S. Reddy, Vivek Tandon, & M. A. Reddy. (2022). Evaluation of effect of moisture on fatigue performance of pavement designed with recycled asphalt mixtures. *Canadian Journal of Civil Engineering*, 50(1), 1-10. <https://doi.org/10.1139/cjce-2022-0086>
16. Surendra, G., Priyansh, N., Bharath, G., Amit J. Solanki, & Kuna Kranthi. (2023). Effect of conditioning procedures on moisture susceptibility of foamed cold-mix asphalt mixtures. *Journal of Testing and Evaluation, ASTM*, 51(4). DOI: 10.1520/JTE20220282
17. S. S Kar, Nipun Beniwal, G Bharath. (2023). Microstructure analysis of cold bituminous emulsion mixture using different filler type. *Journal of Testing and Evaluation, ASTM*, 51(4). DOI: 10.1520/JTE20220192

18. Deepa, S., Anusha, T., Bharath, G., & Jyoti, Y. (2023). Characterization of recycled asphalt pavement materials for use in hot-mix asphalt mixes. *Journal of Testing and Evaluation, ASTM*, 51(5). DOI: 10.1520/JTE20220533
19. Raj Kumar, Arunkumar Goli, Bharath G, S. Shankar, & Kranthi Kumar Kuna. (2023). Influence of curing process on the moisture loss, mechanical and performance characteristics of cold recycled asphalt mixes. *Road Materials and Pavement Design*. DOI: 10.1080/14680629.2023.2199884
20. G. Vamsi, S. Deepa, G Bharath, Sarvesh P., & K.K. Kuna. (2023). Performance evaluation of dense graded emulsion mixes with rejuvenated reclaimed asphalt pavement. *Road Materials and Pavement Design, Taylor and Francis*, IF: 3.80, 1-14. DOI: 10.1080/14680629.2023.2225636
21. Gupta, A., Sasidharan, D., Gottumukkala, B., et al. (2023). Evaluation of healing performance of blended reclaimed asphalt binders with rejuvenators based on rheological and chemical properties. *Sādhanā*, 48(139). <https://doi.org/10.1007/s12046-023-02213-0>
22. M. Verma, G. Bharath, A. Behl, T. Bhaskar V. Kakade, & J. Kumar. (Accepted). Performance evaluation of bio-binder prepared with rice straw bio-oil. *Canadian Journal of Civil Engineering*. <https://doi.org/10.1139/cjce-2022-0467>
23. G. Bharath, Vijay Kakade, K. S. Reddy, Vivek Tandon, & M. A. Reddy. (Accepted). Investigation of rutting performance of dense and gap graded recycled asphalt mixtures. *Innovative Infrastructure Solutions*.
24. Arunkumar G, Deepa S, Raj Kumar B, & Bharath G. (Accepted). Effect of curing regime on mechanical characteristics of cold recycled bituminous mixes. *Materials and Structures*.
25. Divakar Minchala, G. Bharath Varma, Prasad P. S., & Kranthi Kumar Kuna. (Accepted). Laboratory evaluation of marginal and industrial waste material in geocell reinforced pavements under cyclic loading. *Journal of Testing and Evaluation, ASTM*.

Publications in Conference Proceedings

1. Bharath, G., Bharatram, M., Prasad, P. S., & Kranthi, K. K. (2021). Performance evaluation of geocell reinforced bases for locally available material in high altitude regions. In 8th Online International Conference on Transportation Systems Engineering and Management (CTSEM), August 26th-27th, 2021. (**Received Best Paper Award** in the Pavement Technology Theme).
2. Amit Kumar Shaw, Bharath G., P.S. Prasad, & U.K. Guruvittal. (2021). Performance Comparison of Reclaimed Asphalt Pavement Material with Geosynthetic Reinforcement for Base Layers. In Eighth Indian Young Geotechnical Engineers Conference 2021, September 17-18, 2021.
3. Chethan, Gurunath G., Bharath G., & Kranthi K. (2020). Study on aging resistance of bitumen rejuvenated with various rejuvenators for hot recycling. In RILEM International Symposium on Bituminous Materials, December 14-16, 2020.
4. S.S. Kar, G. Bharath, Manoj Shukla, & Satish Chandra. (2020). Field Evaluation of Polymer Modified Emulsion based Rejuvenation Technique. In 2nd International conference on Advances in Materials and Pavement Performance Prediction, May 27-29, 2020, San Antonio, TX, USA.
5. G. Bharath, Vivek Tandon, Amaranatha Reddy M., & Reddy K.S. (2014). Rutting and Cracking Potential of HMA consisting of RAP. In 12th ISAP Conference, June 1-5, 2014, Raleigh, North Carolina, U.S.A.
6. I. Srinivasa Reddy, G. Bharath, & M. Amaranatha Reddy. (2012). Methods to Develop Rutting Performance Criteria for Bituminous Mixes in India. In National Conference on Developments and Opportunities in Civil Engineering, May 18-19, 2012, East West Institute of Technology, Bangalore.
7. G. Bharath & M. Amaranatha Reddy. (2012). Application of Bituminous Binders In Pavement Construction. In National Conference on Advances in Civil Engineering, August 24-25, 2012, Hyderabad.

8. G. Bharath & M. Amaranatha Reddy. (2011). Performance Grading of Indian Bituminous Binders. In National Conference on Recent Advance in Civil Engineering, October 14-16, 2011, Banaras Hindu University.
9. S.S. Kar, Nipun B., & G. Bharath. (2022). Microstructure Analysis of Cold Bituminous Emulsion Mixtures using different Filler type. In ISAP 2022 Symposium Costa Rica, October 25-27, 2022.
10. Surendra G., Priyansh N., G. Bharath, K. Kranthi, & Amit J. Solanki. (2022). Effect of Conditioning procedures on Moisture Susceptibility of Foamed Cold-Mix Asphalt Mixtures. In ISAP 2022 Symposium Costa Rica, October 25-27, 2022.
11. Minchala Divakar, Bharath Gottumukkala, Surya Teja Swarna, & P.S. Prasad. (2023). Performance Evaluation of Geosynthetic Reinforced Marginal Material as Base Layer Over Weak Subgrade. In Transportation Research Board (TRB) 102nd Annual Meeting, January 8–12, 2023, Washington, D.C. Issues: TRBAM-23-03002.
12. Rajat Rastogi, G. Bharath, & Dharamveer Singh (Eds.). (2022). Recent Trends in Transportation Infrastructure, Volume 1 Select Proceedings of TIPCE 2022. Springer.
13. Beniwal, N., Kar, S.S., Bharath, G., Kumar, A., Saini, K., & Nagabhushana, M.N. (2023). Impact of Mechanized Cold Mix Construction Method for Hilly Region Roads. In Rastogi, R., Bharath, G., Singh, D. (Eds.), Recent Trends in Transportation Infrastructure, Volume 1 (pp. 1-14). Springer.
14. Shukla, M., Bharath, G., & Chandra, S. (2023). Development of High Friction Bituminous Surface Course for Aircraft Movement. In Rastogi, R., Bharath, G., Singh, D. (Eds.), Recent Trends in Transportation Infrastructure, Volume 1 (pp. 157-168). Springer.
15. Bharath, G., Behl, A., Kar, S., & Chandra, S. (2023). Successful Utilization of High Amount of Reclaimed Asphalt Pavement Material in Bituminous Pavements: Indian Case Study. In Rastogi, R., Bharath, G., Singh, D. (Eds.), Recent Trends in Transportation Infrastructure, Volume 1 (pp. 107-118). Springer.
16. Behl, A., Bharath, G., & Kumar, A. (2023). Application of FDR Technology for Upgradation of a National Highway. In Rastogi, R., Bharath, G., Singh, D. (Eds.), Recent Trends in Transportation Infrastructure, Volume 1 (pp. 149-156). Springer.
17. Paras M, G. Bharath, Akshay G, Ambika Behl, & Tejas Kumar T. (2022). Development of Resilient Modulus Model for the Bituminous Course. In 14th International Conference on Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC), December 19-21, 2022.
18. Muskan Verma, G. Bharath, & Vijay Kakade. (2023). Investigation of the effect of Portland cement on aging resistance of bituminous mixes prepared with waste brick dust powder. Materials Today: Proceedings. <https://doi.org/10.1016/j.matpr.2023.03.142>.
19. Kashyap, A., Thanikella, V., Bharath, G., & Kuna, K.K. (2023). Finite Element Analysis (FEA) of Geocell Reinforced Pavement in Hilly Terrain. In Proceedings of Indian Geotechnical and Geo-environmental Engineering Conference (IGGEC) 2021, Vol. 1 (pp. 27-36). Springer.
20. Bharath, G., Shaw, A.K., Prasad, P.S., & Kamaraj, C. (2023). Laboratory Evaluation of a Geosynthetic-Reinforced Pavement over Poor Subgrade. In Recent Advances in Civil Engineering. CTCS 2021, Singapore (Vol. 256, pp. 28-37). (**Received Best Paper Presentation** in Theme “Recent Advances in Transportation Engineering”).
21. Deepa S, Anusha T, & Bharath G. (2022). Characterization of Recycled Asphalt Pavement using basic tests. In ICCMS-2022: International Conference on advances in Construction Materials and Structures, December 14-18, 2022, NIT Calicut.
22. Deepa S, Anusha T, & G. Bharath. (2022). Simple protocols for Characterization of Recycled Asphalt Pavement Materials. In International Conference on Innovations in Engineering and Technology (ICIET-2022), September 15-17, 2022, JNTU, Hyderabad.

Contribution to Books

- Contributed in one chapter ““*Urban Mining for Waste Management and Resource Recovery: Sustainable Approaches*” Contributed for the 7th Chapter: Utilization of Reclaimed Asphalt Pavement Material (RAP) as a Part of Bituminous Mixtures, U.S.A, 1st Edition, CRC Press, ISBN-10 : 1032061790. Authors: Ramya Sri Mullapudi, *Gottumukkala Bharath* and Narala Gangadhar Reddy.

PROJECTS

As a Principal Investigator

1. Development of Bio-binder for construction of Flexible Pavements, CSIR -CRRI and CSIR-IIP (On-going), CSIR Funded
2. Sustainable Road Pavements in High Altitude Regions Using Geosynthetics, Grant Aid Project (Scheme: National Mission on Himalayan Studies), Funded by G.B. Pant National Institute of Himalayan Environment & Sustainable Development, Ministry of Environment, Forest and Climate Change.
3. Laboratory and Field Evaluation of the Bituminous Mix/Soil stabilization using ANT Organic Stabilizer, Sponsored Project.
4. Pavement Design and Mix design of Cement-Treated Base layer for km 298.00 to 330.662 of NH-04 Andaman and Nicobar Islands,
5. Crust Design of Approach Road at Industrial Area CDF, Aligarh, funded by U.P. State Industrial Development Authority (UPSIDA)
6. Pavement Evaluation for rutting failure- Six laning of Chittorgarh -Udaipur section (Design Chainage 214-870 to km 308-370) of NH -48 in the state of Rajasthan, funded by UCHIT Expressways Pvt. Ltd
7. Design of cementitious sub base and base and Design of flexible pavement, Sponsored By Military Engineering Service (MES, Gandhinagar)
8. Development of Resilient Modulus (RM) Testing System, Collaborative, CSIR-CRRI &Hydraulic & Engineering Instruments
9. Design of Cold Recycled mix using foam bitumen for NH 66 Km 291/00 to 319/00 in Kerala, Consultancy, PMR Construction
10. Strengthening of Pusta Road and Geeta Colony Yamuna Bridge road under Division East Road (M-212)/Sub.Div-I, Consultancy, Delhi PWD.
11. Investigation for Rehabilitation Centered Improvements of condition of DDA Master Plan roads in Dwarka, Funded by DDA Dwarka, Delhi
12. Development of Cementitious Material/Grout for Use in Cement Grouted Bituminous Mix, Sponsored Project, Funded by International Combustion (India) Limited.
13. Verification of bituminous surfacing specifications of AAI for required modifications to enhance the friction coefficient, Sponsored Project, Funded by Airport Authority of India.
14. Proposal for modernization and infrastructure up gradation of R&D facilities in Flexible pavement division, In-house R&D, Funded by CSIR-CRRI.
15. Strengthening of road under Division East Road- (M 212) by Benkelman Beam testing, Consultancy, Delhi PWD. Detail Investigation of causes of Settlement of left side carriage way of kotla road under Delhi PWD Division (M-212) & recommendation for rehabilitation. Delhi PWD.
16. Evaluation of material for mix design of cement treated base layer for up gradation of kargil-Zanskar road in the state UT of Ladakh on EPC mode
17. Vetting of design of flexible pavement for Jurichhara-Bamanchara Section from Km 49.22 to Km 63.7 in the state of Tripura

18. Evaluation of material for mix design of cement treated base layer for up gradation of Kargil-Zaskar road in the state UT of Ladakh on EPC mode from Km 117+180 to 196+250, Funded by Skylark Infra Engineering Private limited.
19. Pavement Design using Recycling Methods for Rehabilitation and Up-gradation of Valigonda to Thorrur Section of NH-930P in the State of Telangana, Funded by VDB projects private limited
20. Advising the department in adopting Full depth reclamation (FDR) technology for the suitable roads and giving Mix Design and Pavement design for selected R&B roads (Total length 500 km) in Andhra Pradesh, Funded by Roads & Building Department, Andhra Pradesh
21. Strengthening of Road by Milling and Recycling Process under Division East Road (M-212), Sub Division III, Funded by PWD Delhi
22. Mix design of BC with Highly Modified Asphalt (HiMA) for Jaipur-Mahua, Rajasthan, funded by Cube Highways and Transport Asset Advisors Pvt. Ltd.

As a Team Member

1. Feasibility Study (Lab & Field) of Using Higher RAP Content in Bituminous Pavements, Funded by NHAI, Delhi (Co-PI)
2. Design and Performance Evaluation of Cement Grouted Bituminous Mix (CGBM) for Urban Roads, In-house R&D (FTT), funded by CSIR.
3. A framework for categorization of RAP from different sources using simple laboratory tests In-house R&D , funded by CSIR.
4. Design guidelines/specification for road system during- and after- construction of mass housing system including traffic impact analysis and noise pollution, In-house R&D (Mission mode), funded by CSIR.
5. Development of Rejuvenating Agent (RA) for Use in Recycling of Asphalt Pavements (RAP), In-house R&D (FBR), CSIR
6. Application of Cold Bituminous Based Eco-friendly Road Building Technology for the Special Featured Himalayan Regions, Grant Aid Project (Scheme: National Mission on Himalayan Studies), Funded by G.B. Pant National Institute of Himalayan Environment & Sustainable Development, Ministry of Environment, Forest and Climate Change.
7. Estimation of Modulus of Resilience by Volumetric/Performance properties of Asphalt mixes, Funded by Ministry of Road Transport and Highways
8. Investigations for Determining the Causes of Surface Damage of the Airforce Runway at Panagarh for Remedial Measures, Sponsored, Military Engineering Service.
9. Evaluation of PME Rejuvenator of LN Petrochem Pvt. Ltd, Sponsored, LN Petrochem Pvt. Ltd,
10. Determination of resilient modulus of DBM and BC Mixes using superplast additive for the project at Solapur section of NH-9, Sponsored, Solapur Tollways Pvt. Ltd
11. Evaluation of Effect of Modified Wheel Configuration of Electric Bus of Alstom on Flexible Pavement, Sponsored, Alstom India Ltd
12. Pavement design using appropriate recycling option for Madhavpur section (46.54kms) of upgradation work of Gadu-Porbandar section of NH-8E, Consultancy, Kalthia Infra Project Private Limited.
13. Investigation for Revision of Design of New Pavement for ITBP Strategic Road (Thangu-Muguthang) in the State of Sikkim, Consultancy, CPWD
14. Pavement design and mix design using cold in place recycling for repair/rehabilitation work of Bharatpur-Mahua section from km 63+00 to km 120+00 of NH 21 in state of Rajasthan, Consultancy, M/s Mahua Bharatpur Expressway Limited.
15. Hot in place recycling (HIPR) of Ranchi Ring road section of app length 30 Km-6 lane carriageway. Preparation of HIPR mix design for renewal treatment/preventive maintenance of existing pavement, Consultancy, Infrastructure Leasing & Financial Services.

16. Evaluation of three roads (Krishnapatnam port (AP), Poranki (AP) & Hyderabad (TS)) stabilized with cement and stabilroad stabilizer, Consultancy, M/s Vishwa Samudra Engineering Private Limited (VSEPL)
17. Pavement design and Mix design using cold in place recycling for repair/rehabilitation work of Rajahmundry-Tuni NH-5, Consultancy, M/s Markolines Traffic Controls Pvt. Ltd
18. Study and Determination of Thickness and composition of materials for pavement layers in High Altitude/snow bound Area, Sponsored, Border Road Organization (BRO)
19. Feasibility study for use of Bottom Residue to mix with bitumen/bituminous mixes/RAP material etc., through laboratory evaluation, Sponsored, Petroleum Re Refiners Association of India
20. Technical advice and supervision of strengthening of Noida-Greater Noida Expressway, Sponsored, Noida Authority
21. Pavement design and mix design using cold in place recycling with foamed bitumen for Beawar-Pali Consultancy, LnT IDPL
22. Investigation for strengthening of road stretches of "4-lanning of Jetpur-Somnath section of NH-8D from Km 0/000 to km 127/000 in the state of Gujarat on DBFOT Toll Basis under NHDP-Phase-III", Consultancy, NHA
23. Mix design for CTSB and RAP for widening of NH-4 from single lane to 2 lanes in Andaman & Nicobar Islands (Pkg-2, Pkg-3 and Pkg-4) and recommendation on feasible, Consultancy, Vasishta Constructions Pvt. Ltd
24. Investigation to study causes of distress in runway at Coimbatore International airport and Suggest Suitable remedial measures, Airport Authority of India.
25. Development of Design Guidelines and Specification for utilization of steel slag in Road construction for M/s Tata Steel. Tata Steel.
26. Investigation for rut affected area Bikaner-Phalodi section in the state of Rajasthan for remedial measures, Ircon International limited
27. Design of Bituminous mix for the resurfacing of runways at INS GARUDA, Naval Base Kochi, Kerala under Military Engineering Service
28. Vetting of design of flexible pavement using Zydex Nanotechnology based additives for rehabilitation and upgradation of package III (km 107 to 129) section NH 4, Andaman and Nicobar Island
29. Laboratory and Field Evaluation of Shalmac Ready mix product for Patch Repair, Jai Balaji Enterprises
30. Pavement Analysis and suggestive course of action for frequent distress of flexible pavement of section Gundugolanu to Siddhantham of NH-16 in the state of Andhra Pradesh, Package-1 (72kms)
31. Pavement Analysis and suggestive course of action for frequent distress of flexible pavement of section Diwancheruvu to Siddhantham of NH-16 in the state of Andhra Pradesh, Package-2 (49 kms)
32. Skill Development, Certificate Course on "Road Safety Audit and other Road Safety Engineering related aspects" for the Highway Engineers / Transportation Consultants (8th and 9th Batch)
33. Customised Training Programs on "Capacity Building on Advance Technologies and Use of Waste Plastic in Road Construction in Cold Region" for the engineers of RD&PR Department, UT of Ladakh
34. Customised Training Programme on various topics for the officials of NRIDA, New Delhi (working under PMGSY Projects)
35. Design of recycled asphalt mix for reconstruction and rehabilitation of Deoli-Kota section of NH-12 (Design Km 167.624 Km to Km 205.724) in the state of Rajasthan.
36. Pavement Evaluation for rutting failure-4 lanning of Hospet-Chitradurga Section of NH-13 (Design Chainage Km 299.000 to Km 418.750) in the state of Karnataka.

37. Pavement Design for 4 laning of Beawar-Pali-Pindwara section of NH-14 in the state of Rajasthan under NHDP Phase-III executed by L&T BPP Tolway Ltd.
38. Online Customised Training Programs on "Innovative Ideas and Techniques in the Field of Highway Engineering as Applicable to Hilly/Mountainous Regions "for the officers of NHIDCL, New Delhi
39. Online Customised Training Programme on various topics for the officials of NRIDA
40. Evaluation of LCR/MIF Value of MacGrid EG 30S (i.e. biaxial extruded polypropylene geogrid) for pavement design of Dantiwara-Piper-Merta city section of SH-21, Rajasthan
41. Design of recycled asphalt mix for reconstruction and rehabilitation of Deoli-Kota section of NH-12 (Design km 167.624 km to km 205.724) in the state of Rajasthan
42. Design for FDR mix and evaluation of trial patch of FDR road in the State of U.P.
43. Alternate Pavement Design and mix design for construction of NH 124D in the state of Uttar Pradesh
44. Evaluation of "ALPAVE" admixture as stabilizing additive (CTB, CTSB, Soil Stabilization layers) for Pavements.
45. Carrying out condition assessment of 60m wide road from Dhulsirus chowk to Bamnoli village Dwarka (100 m length)
46. Mix design for BC and DBM for Rut Resistance in the Udaipur-Chittorgarh section (NH-48)

DISSERTATIONS GUIDED:

Ph.D: Guiding Two AcSIR Ph.D student (Supervisor).
: Guiding One from IIT Roorkee (Co-Supervisor)

M.TECH STUDENTS

- Mr Priyansh "Moisture Sensitivity and Rutting Performance of Foamed Bitumen Mixes Incorporating Reclaimed Asphalt Pavements" SVNIT, Surat.
- Mr Chethan kumar "Selection of Rejuvenator for HMA with High RAP Content" IIT Kharagpur.
- Mr. Bharatram Mehar "Development Modulus of Improvement Factors for Pavement Layer With Geocell" IIT Kharagpur
- Chinmaya s "Comparison between performance characteristics of field produced high modulus asphalt mixture and conventional asphalt mixture" Siddaganga institute of technology, Tumakuru.
- Mr. Yash Mishra "Effect of Moisture on Performance Characteristics of Foamed Bitumen Mix" IIT BHU, Varanasi
- Mr. Rajkumar "Development of Curing Regime Models of Cold recycled bituminous mixtures" NIT Warangal.
- Mr. Vamsi Krishna "Moisture Damage Resistance Of 100% Cold Recycled Asphalt Mixtures With Rejuvenators" NIT Bhopal
- Mr. Minchala Divakar "Development Of Permanent Deformation Performance Model For Geosynthetic Reinforced Pavements" IIT Kharagpur .
- Mr . Paras Markana "Development of Resilient Modulus Model for the Bituminous Course" Pundit Deendayal Energy University, Gandhinagar
- Shivam Kumar "Study on the use of Natural Bio-oil as a Bitumen Modifier" NIT kurukshetra
- Muskan Verma "Characterization Bio-Binder (Rice Straw) For Construction of Flexible Pavements" BITS-Pilani

KEYNOTE LECTURE DELIVERED

1	03-12-2018	NIT Nagpur, India	Guest Speaker
2	14-05-2018	Veer Surendra Sai University of Technology, Burla, India	Guest Speaker
3	04-09-2021	Civil engineering departmental distinguished lecture series at SRM University, Andhra Pradesh	Guest Speaker
4	24-09-2021	Faculty Development Program On Recent Advances in Pavement Analysis, IIT Jodhpur	Guest Speaker
5	24-11-2021	Presented on 'Green Highways' Training Centre, HRS, Chennai.	Guest Speaker
6	24-08-2021	Presented on Hill Road Sustainable Infrastructure:Challenges and Management, jointly organized by National Institute of Disaster Management (NIDM), and CSIR-Central Road Research Institute.	Guest Speaker
7	11/03/2022	Lectures delivered on (i) Introduction to Full Depth Reclamation - Rural Road Construction (ii) QA/QC in Full Depth Reclamation - Rural Road Construction on 12th March 2022, IIT BHU conducted a Short Term Course (Online Mode) funded by NRIDA on the topic "New Technology Initiatives in Rural Roads Including Use of Marginal Materials" for Engineers of NRIDA	Expert Lecture
8	18/02/2022	Lectures delivered on (i) Bituminous Mix Design – Volumetrics (ii) Marshall Mix Design - Laboratory Preparation of Test Specimens/Tests and Determination of Optimum Binder Content on 20th Feb. 2022, IIT BHU conducted a Short Term Course (Online Mode) funded by MoRTH on the topic "Quality Management for Highway Project - Flexible Pavements" for Engineers of MoRTH/NHA/NHIDCL	Expert Lecture
9	15/02/2011	Lectures delivered on (i) Mix design for Full Depth Reclamation (ii) Construction Process & Quality Control of Full Depth Reclamation on 16-02-2022, VNIT Nagpur is organized a Training Course for NRIDA Engineers titled "Design of Flexible and Rigid Pavements"	Expert Lecture
10	19/02/2022	Lecture delivered on “Recycled Asphalt Pavement Material” Faculty Development Program, Design and Construction Practices of Sustainable Pavements, conducted by GMR Institute of Technology and B V Raju Institute of Technology.	Expert Lecture
11	23/03/2023	Workshop on Cement Treated Base” (CTB)” presented On behalf of the National Rural Infrastructure Development Agency (NRIDA), Ministry of Rural Development, 23rd March 2023, Leh, UT of Ladakh	Guest Speaker
12	18/02/2023	“Workshop on Full Depth Reclamation (FDR)” presented On behalf of the National Rural Infrastructure Development Agency (NRIDA), Ministry of Rural Development, 16th February 2023, Dimapur, Nagaland	Guest Speaker
13	15/12/2022	“Hot and Cold Recycling Pavements” at 3rd International Conference on Sustainable Construction Technologies & Advancements in Civil Engineering, Vishnu Engineering College, Andhra Pradesh. 15-17 Dec 2022	Guest Speaker
14	18/11/2022	“Full Depth Reclamation” a 3-day online short-term training program (STTP) on “Design of Flexible & Rigid Pavements” for officers involved in PMGSY works during November 17-19, 2022.NIT Nagpur.	Guest Speaker
15	24/11/2022	Presented on 1. “Full-Depth Recycling for Rural Roads 2. “Use of Geo Synthetic for Flexible Road Construction” 5-day online short-term training program (STTP) on “Design of Flexible & Rigid Pavements” for officers involved in PMGSY works during October 28-1st Nov, 2022 and November 24-28, 2022. MNIT Bhopal.	Guest Speaker
16	10/03/2023	Presented on "Stabilization of Pavement Layers" on organize a One day National Conference on the theme “Emerging Techniques in Pavement Stabilization” on 10th March, 2023, NIT Agartala	Guest Speaker
17	29/05/2022	Guest Speaker: “Delivered Guest lecture on “Full Depth Recycling” conference of regional officers/Project Directors (South Zone), Kochi, Organized by RO Kerala, NHAI, 29th May 2022	Guest Speaker
18	15/09/2022	Guest Speaker for one-day workshop organised by department of civil engineering on “Advanced Strategies in Pavement Engineering” IIIT Nuzvid, Andhra Pradesh.	Guest Speaker

AREAS OF EXPERTISE

- Analysis and Design of Flexible and Rigid pavements as per IRC and AASHTO design guidelines including use of analytical tools such as IITPAVE, IITRIGID and MEPDG
- Pavement material characterization including advanced testing of binders using Dynamic Shear Rheometer, Rolling Thin Film Oven, Pressure Aging Vessel, and for characterization of mixes for their resilient modulus, dynamic modulus, fatigue and rutting performance using different types of UTMs, SPT and Rut Testers
- Design and evaluation of recycled mixes (Hot/Cold/FDR)
- Structural evaluation of flexible pavements using Falling Weight Deflectometer and design of overlays as per IRC:115-2014 including use of back-calculation software KGPBACK

RECOGNITIONS AND ACHIEVEMENTS

- Received SKOCH award in silver category for “Rehabilitation of National Highway by Recycling Asphalt Pavement (RAP)” on 29th November 2019, New Delhi. (Team member)
- Received Appreciation certificate from the institute for the construction of First Steel Slag Road using processed steel slag aggregates at Surat, Gujarat, India (Team member).
- Nominated by Head of the Institute for CSIR Young Scientist Award, 2022. Submitted the application form.
- Received two best paper awards in international conferences
- Nominated by Head of the Institute for CSIR Young Scientists Conclave Meet, 2021, Presented topic: Development of Bio-Binders for Sustainable Bituminous Roads, 5th March, 2021
- Received Appreciation letter (Stating that satisfied with methodology and findings of report, Dt:30th September 2019) from Alstom India for completed sponsored project “Evaluation of Effect of Modified Wheel Configuration of Electric Bus of Alstom on Flexible Pavement”. (Team Member). Alstom India forwarded project report to MoRTH to launch electric bus APTIS with modified axle configurations for Indian roads.
- Visited Bangladesh (25-27th May, 2019) to meet Roads and Highways Department of Bangladesh Government to finalise JV on “Review of existing pavement design guide and preparation of a pavement design manual for roads and highways department (RHD)” as a foreign collaboration. (Team work): Received International Travel Grant from MUSAD ENGG and CONSULTANCY
- Awarded Sri S.Nanjundaiah Gold Medal for being university topper in Civil Engineering for the 2005-2009 batch
- Sri Addepalli Lakshmana Swamy memorial award for being university toper among all the branches (5th Semester of Engineering) in the year 2011
- Sri Bhagavathula Venkata Subbaya, Prof.K.Krishnamacharyalu and Ivaturi Naga Bhushanam Rao awards for outstanding performance in the semester examinations.
- Secured GATE-2009 ALL INDIA RANK 179
- Secured second position among the students of MTech in Transportation Engineering at IIT Kharagpur
- Assisted Prof. BB Pandey in the drafting of IRC: 58-2011 and in the preparation of the Excel based Design Tool.
- Assisted Prof BB Pandey in the drafting of IRC:37-2012 “Guidelines for Design of Flexible Pavements.”
- Worked in University of Texas, El Paso for a semester (2012-2013) under Prof Vivek Tandon as a research exchange visitor.
- Visited University of Texas, El Paso and Worcester Polytechnic Institute, Massachusetts under technology exchange program, “HIGHWAY AND AIRPORT PAVEMENT ENGINEERING”- (June 2010), sponsored by Indo- US Science and Technology Forum.

MEMBERSHIP TO PROFESSIONAL BODIES

- **Life Member at Indian Road Congress (ELM-101538)**
- **Life Member at Indian Geotechnical Society (LM 1161)**