

## SWATI MAITRA

Assistant Professor

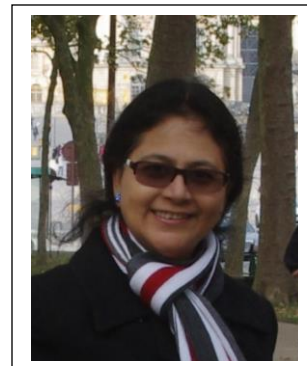
Ranbir & Chitra Gupta School of Infrastructure Design and Management

Indian Institute of Technology Kharagpur

Kharagpur 721 302, INDIA

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### Education

- Ph.D. in Civil (Transportation) Engineering, IIT Kharagpur
- M.Tech. in Civil (Structural) Engineering, IIT Bombay
- B.E. in Civil Engineering, Bengal Engineering College, Shibpur

### Research Areas

- Concrete Pavement, Analysis and Design
- Concrete Overlay and Whitetopping
- Monitoring, Instrumentation and Performance Evaluation
- Retrofitting and Rehabilitation
- Concrete and Cementitious Materials
- Road Safety

### Subjects Teaching

- Retrofitting and Rehabilitation of Infrastructure (new course offered)
- Planning and Development of Road Infrastructure (new course offered)
- Construction Technology for Civil Infrastructure (new course offered)

### Ph. D./ M. Tech Students Guidance

- Ph. D – 4 (ongoing, single guidance)
- M. Tech – 4 (ongoing, single guidance), 9 (completed, 8 single guidance)

### Employment Record

From July 2016 to till date

#### **Assistant Professor**

RCG School of Infrastructure Design and Management

Indian Institute of Technology Kharagpur,

Kharagpur- 721 302, India

From Jan 2013 to May 2016

#### **Scientist, WOS-A, DST, Govt. of India**

SRIC, Department of Civil Engineering

Indian Institute of Technology Kharagpur

Kharagpur- 721 302, India

From Feb 1998 to Jun 2001

#### **Research Associate**

Department of Civil Engineering

Indian Institute of Technology Bombay

Mumbai- 400 076, India

From Apr 1991 to Jan 1998

**Design Engineer**

Apex Techno Consultants Pvt. Ltd.  
Kolkata – 700 001, India

From Jul 1989 to Apr 1991

**Assistant Engineer**

D. Sinha & Associates  
Kolkata – 700 016, India

### **Publications in Book/Manual Chapters**

- Maitra, S. and Bera R. (2017). “Know Your Roads” in Training Manual for Drivers, Ed. by Maitra, B., [ISBN: 978-93-80813-53-0](#), pp. 1-17
- Maitra, S. and Bhattacharya, K. (2017). “Road Signs” in Training Manual for Drivers, Ed. by Maitra, B., [ISBN: 978-93-80813-53-0](#), pp. 19-45.

### **Publications in International and National Journals**

- Marwein, P. and Maitra, S. R. (2021). “An Investigation on FRP-Stay-in-Place Concrete Composite System for Sustainable Construction”, Journal of The Institution of Engineers (India): Series A, Springer, 102(1), 1-14. (<https://doi.org/10.1007/s40030-021-00510-7>)
- Dhiman, V. and Maitra, S. R. (2021). “Retrofitting of Reinforced Concrete Box Culvert using Fiber Reinforced Polymer Composites - A Numerical Investigation”, Indian Concrete Journal, 95(2), 7-15
- Dandapat, S., Ghosh, T., Shankar, U., Maitra, S., and Maitra, B. (2020). “A Relook at the Pollution Certification for In-use Vehicles in India and Way Forward.”, Asian Transport Studies Journal, 6(C), 100020. (<https://doi.org/10.1016/j.eastsj.2020.100020>)
- Deb, S., Mitra, N., Maitra, S. R. and Basu Majumdar, S. (2020). “Comparison of Mechanical Performance and Life Cycle Cost of Natural and Synthetic Fibre Reinforced Cementitious Composites”, Journal of Materials in Civil Engineering, ASCE, 32(6), 04020150-1-12. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003219](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003219)
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2019) “Effect of Joint and Pavement Related Parameters on Load Transfer Characteristics of Aggregate Interlocked Jointed Concrete Pavement”, Transportation in Developing Economies, Springer, 5:15, <https://doi.org/10.1007/s40890-019-0080-x>
- Maitra, S. R., Reddy, K. S., Ramachandra, L. S. and Pandey, B. B. (2018) “Numerical Analysis of Short Paneled Concrete Pavement”, Indian Highways, 46(8), 11-19.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2018) “Stress Intensity Factor based Damage Prediction Model for Plain Concrete under Cyclic Loading”, Journal of Materials in Civil Engineering, ASCE, 30(7), 04018118-1-12. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0002289](https://doi.org/10.1061/(ASCE)MT.1943-5533.0002289)
- Deb, S., Mitra, N., Basu Majumdar, S. and Maitra, S. R. (2018). “Improvement in tensile and flexural ductility with the addition of different types of poly-propylene fibres in cementitious composites”, Construction and Building Materials, Elsevier, 180, 405-411. <https://doi.org/10.1016/j.conbuildmat.2018.05.280>
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2015). “Estimation of Joint Parameters for the Finite Element Analysis of Jointed Concrete Pavement using Structural Evaluation Results.” International Journal of Pavement Engineering and Asphalt Technology, 16(2), 21-38.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2015). “A Comprehensive Three-Dimensional Finite Element Model for the Analysis of Jointed Concrete Pavement.” Journal of the Indian Roads Congress, 75-4, 73-81.

- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2014). "Numerical Investigation of Fatigue Characteristics of Concrete Pavement." *International Journal of Fracture*, Springer, 189, 181-193. <https://link.springer.com/article/10.1007/s10704-014-9969-x>
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2010). "Load Transfer Characteristics of Aggregate Interlocking in Concrete Pavement." *Journal of Transportation Engineering*, ASCE, 136 (3), 190-195. [https://doi.org/10.1061/\(ASCE\)TE.1943-5436.114](https://doi.org/10.1061/(ASCE)TE.1943-5436.114)
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2009). "Load Transfer Characteristics of Dowel Bar System in Jointed Concrete Pavement." *Journal of Transportation Engineering*, ASCE, 135(11), 813-821. [https://doi.org/10.1061/\(ASCE\)TE.1943-5436.0000065](https://doi.org/10.1061/(ASCE)TE.1943-5436.0000065)
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2009). "Experimental Evaluation of Interface Friction and Study of its Influence on Concrete Pavement response." *Journal of Transportation Engineering*, ASCE, 135(8), 563-571. [https://doi.org/10.1061/\(ASCE\)0733-947X\(2009\)135:8\(563\)](https://doi.org/10.1061/(ASCE)0733-947X(2009)135:8(563))
- Basu, D., Maitra, S. R. and Maitra, B. (2006). "Modelling passenger car equivalency at an urban midblock using stream speed as measure of equivalence." *European Transport*, XII, 34, 75-87. <http://hdl.handle.net/10077/5930>
- Mukherjee, A., Boothby, T. E., Bakis, C. E., Joshi, M. V. and Maitra, S. R. (2004). "Mechanical Behavior of Fiber-Reinforced Polymer-Wrapped Concrete Columns—Complicating Effects." *Journal of Composites for Construction*, ASCE, 8(2), 97-103. [https://doi.org/10.1061/\(ASCE\)1090-0268\(2004\)8:2\(97\)](https://doi.org/10.1061/(ASCE)1090-0268(2004)8:2(97))

## Publications in International/ National Conferences

- Maitra, S. (2020). "Towards Sustainable and Resilient Infrastructure for Adaptation to Climate Change in Sunderbans" *Proceedings of the DAAD Alumni Congress International Conference on Climate Change Adaptation: Evidences from Best-Practice in Coastal Areas*, organized Online by the Alumni Association of German Universities in Bangladesh (AAGUB), December 4-5, 2020, Rajedrapur, Bangladesh
- Caggiano, A., Schicchi, D. S., Maitra, S., Yang, S. and Koenders, E. A. B. (2020). "Micro-to-meso scale mechanisms for modelling the fatigue response of cohesive frictional materials" *Proceedings of the 3<sup>rd</sup> RILEM Spring Convention*, March 9-14, 2020, Guimarães, Portugal
- Das, P. and Maitra, S. (2020). "Identifying the importance of attributes as perceived by tourists for improving pedestrian infrastructure – a case study in Murshidabad", *Proceedings of the 2<sup>nd</sup> ASCE India Conference on Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies (CRSIDE2020)*, March 2-4, 2020, Kolkata, India
- Baroowa, D. D. and Maitra, S. (2020). "Whitetopping: A Sustainable Strengthening Measure for Improving the Service Life of Existing Road", *Proceedings of the 2<sup>nd</sup> ASCE India Conference on Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies (CRSIDE2020)*, March 2-4, 2020, Kolkata, India
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2019). "Material and Size Effect on Fatigue Damage of Concrete for Pavement Application", *Proceedings of the 15<sup>th</sup> World Conference on Transport Research (WCTR 2019)*, May 25-31, 2019, IIT Bombay, India
- Basu, D., Roy, S., Maitra, S.R., and Majumdar, B.B. (2019). "An assessment towards identifying improvement needs of urban bus stop infrastructure: Knowledge gained from Bhubaneswar", *Proceedings of the 15<sup>th</sup> World Conference on Transport Research (WCTR2019)*, May 25-31, 2019, IIT Bombay, India
- Maitra, S. R., Reddy, K. S. and Ramachandra, V. (2019). "Whitetopping: An Environment-Friendly Pavement Rehabilitation Strategy for Urban Roads." *Proceedings of the International Seminar Construction and Maintenance of Rigid Pavement – Current Practice and Way Forward* by Indian Roads Congress, New Delhi, January 18-19, 2019, New Delhi, India

- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2017). "Effect of Joint and Pavement Parameters on Load Transfer Characteristics of Granular Interlocked Jointed Concrete Pavement." *Compendium of 4th International Conference of Transport Research Group of India, CTRG 2017*, Dec 17-20, IIT Bombay, India
- Deb, S., Mitra, N., Maitra, S. R. and Basu Majumdar, S. (2016). "Investigation of Mechanical Properties of Engineered Cementitious Composites for the Development of Alternatives to Conventional Concrete for Sustainable Infrastructures", *Proceedings of the International Conference, Structural Engineering Convention, SEC 2016*, Dec 21-23, Chennai, India
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2016). "Fracture and Fatigue Life Estimation of Plain Concrete – an Experimental Investigation." *Proceedings of the International Conference on Experimental Mechanics, ICEM17*, Rhodes, Greece.
- Maitra, S. R., Reddy, K. S., Ramachandra, L. S. and Pandey, B. B. (2015). "Analysis of Short Paneled Concrete Pavement for Urban Roads." *Proceedings of the 3rd International Conference of Transportation Research Group of India (CTRG, 2015)*, Kolkata, India.
- Maitra, S. R. (2015). "Sustainable Concrete Roads - Research Needs in Indian Context." *Proceedings of All India Seminar on Concrete Roads – An Alternative in Indian Milieu*, The Institute of Engineers, Kolkata, India.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2014). "Effect of Pavement Parameters on Fatigue Resistance of Concrete Pavement." *Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics, ICTACEM 2014*, IIT Kharagpur, India.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2013). "Estimation of Critical Stress in Jointed Concrete Pavement." *Procedia, Social and Behavioral Sciences*, Vol. 104, 208-217, Agra, India.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2011). "Structural Evaluation of an In-Service Concrete Pavement." *Proceedings of the 1st International Conference of Transportation Research Group of India (CTRG, 2011)*, Bangalore, India.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2007). "Influence of interface condition on concrete pavement response - an experimental evaluation." *Proceedings of the International Conference on Advanced Characterisation of Pavement and Soil Engineering Materials*, Athens, Greece, Vol. 2, 1455-1462.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2007). "Load Transfer in Dowel-Jointed Concrete Pavement." *Proceedings of the International Conference on Civil Engineering in New Millennium: Opportunities and Challenges (CENeM-2007)*, Bengal Engineering and Science University, Shibpur, India. Vol. III, 2132-2138.
- Maitra, S. R., Reddy, K. S. and Ramachandra, L. S. (2006). "Interface Behavior in Concrete Pavement." *Proceedings of 2<sup>nd</sup> International Congress of Computational Mechanics and Simulations (ICCMS 2006)*, Indian Institute of Technology, Guwahati, India.
- Mukherjee, A., Maitra, S. R. and Joshi, M. V. (2002). "FRPC confined concrete columns - Experimental and analytical studies." *Proceedings of the International Conference on Advances in Civil Engineering (ACE-2002)*, Indian Institute of Technology, Kharagpur, India.

## Publication in International Newsletter

- Maitra, S. R. (2011). "Numerical and Experimental Investigations of Jointed Concrete Pavement." *Newsletter, International Society for Concrete Pavements*, 8(3).

## Technical Reports

- Maitra, S. R. (2020). "Thin Whitetopping Design Recommendations for Sarat Bose Road", for *The Kolkata Municipal Corporation, Govt. of West Bengal*.

- Maitra, S. R., Kranthi, K. K. and Reddy, K. S. (2019). “Potential Alternatives to HMA in Road Construction”, for *The Kolkata Municipal Corporation, Govt. of West Bengal*.
- Maitra, S. R. (2019). Design Report: Thin Whitetopping”, for *The Public Works Department, Govt. of West Bengal*.

## Awards & Recognition

- DAAD Fellowship of Bilateral Exchange of Academics, for the visit to Technische Universitat, Darmstadt, Germany for research, funded by German Academic Exchange Service, 2019
- Bihar PWD Medal in 77th IRC Annual Session, 2016 for Outstanding paper on ‘Road Research’ by Indian Roads Congress, Govt. of India, for the paper published in Journal of the Indian Roads Congress, 75-4, 2015
- Best Paper award in Pavement Engineering in the 3<sup>rd</sup> International Conference of Transportation Research Group of India, Kolkata, 2015
- Recipient of MHRD Scholarship during Doctoral studies, July 2004 - June 2008
- PhD Thesis referred in developing IRC: 117 – 2015 Guidelines for the Structural Evaluation of Rigid Pavement by Falling Weight Deflectometer, Indian Roads Congress
- Research Papers referred in revising IRC: SP: 76 – 2015 Guidelines for Conventional & Thin Whitetopping, Indian Roads Congress

## Short Term Course / Training Program Organized

- ‘Road Safety Audit’ Co-Coordinator, Training Program, sponsored by MORTH, Govt. of India and Asian Institute of Transport Development, New Delhi, at IIT Kharagpur, October 21 to 25, 2019
- ‘From Infrastructure Creation to Rehabilitation: Redefining the Role of Engineers’, Coordinator, GIAN Course, sponsored by MHRD, Govt. of India, at IIT Kharagpur, September 02 to 06, 2019
- ‘Sustainable Urban Transport: Design of Road infrastructure and Facilities’, Coordinator, TEQIP sponsored 3-day Short Term Course, IIT Kharagpur, February 15 to 17, 2019
- ‘Concrete Roads: Analysis, Design and Evaluation’, Coordinator, TEQIP sponsored 3-day Short Term Course, IIT Kharagpur, February 27 to March 01, 2017
- ‘Learning Safe Drive - Training for Trainers of Motor Training Schools’, Joint Coordinator, Transport Department, Govt. of West Bengal sponsored 3-day Training Programme, IIT Kharagpur, August 23 – 25, 2017

## Distinguished Guest Lectures in Other Institutes/Organizations

- Institute of Construction and Building Materials, TU Darmstadt, Germany, June, 2019
- School of Design, National Yunlin University of Science & Technology, Douliu, Taiwan, Aug 2018
- Department of Civil Engineering, Tsinghua University, Beijing, China, June 2015
- Department of Civil Engineering, NIT Agartala, May, 2015
- Department of Civil Engineering, NIT Srinagar, October, 2012
- Department of Civil Engineering, NIT Surat, September, 2012
- Institute for Transportation, Technische Universitat Darmstadt, Germany, May, 2010

## Invited Lectures in Short-Term Courses / Training Programs / Workshops / Seminars

- “Load Transfer Characteristics of Concrete Pavement”, in Online Short Training Program titled *Emerging Technologies in Transportation Engineering for Sustainable Development (Series II- Rigid Pavements)*, organized by Civil Engineering Department, Vignana Bharathi Institute of Technology (Autonomous), Hyderabad, Telangana, October 05-10, 2020

- “Characteristics and Design Considerations for Concrete Pavement”, in Online Short Term Course *Advances in Transportation Engineering (ATE 2020)*, organized by Department of Civil Engineering, NIT Rourkela, September 23-27, 2020
- “Characteristics and Design of Rigid Pavement”, in Online Faculty Development Program *Recent Developments in Cement Concrete Pavements: Various Cementitious Materials, Admixtures, Testing Protocol, Mix Designs and Pavement Design*, organized by Department of Civil Engineering, Rajiv Gandhi University of Knowledge Technologies, RK Valley (IIIT-RK Valley), Kadapa, Andhra Pradesh, September 07-11, 2020
- “Enhancing Road Safety”, in Online Interaction Session with IPS Probationers on *Traffic Management and Road Safety: Challenges and Interventions*, organized by Police Training Institute Barrackpore, August 19, 2020
- “Recent Advances in Concrete and Sustainable Materials” Keynote Lecture in National Webinar on *Recent Advances in Concrete and Sustainable Materials*, organized by Indian Concrete Institute, Bangalore Centre and JSW Cement, July 29, 2020
- “Characteristics and Design of Rigid Pavement” in Online Short Term Course *Emerging Trends in Highway Engineering and Infrastructure Development*, organized by Department of Civil Engineering, NIT Jalandhar, June 23-27, 2020
- “Sustainable Construction Materials” Key note lecture in National Webinar, organized by M/s Larsen & Toubro Ltd., June 10, 2020
- “Sustainable Cementitious Materials for Infrastructure Development: Challenges and Research Needs” Key note lecture, in Regional Workshop *Blended Cement and its use for Developing Sustainable and Eco-friendly Structures (SCOPE-2020)*, Organized by JSW Cement Ltd., Kolkata, February 13, 2020
- “Structural Analysis of Whitetopping” in National Workshop *Whitetopping – A Sustainable Option for Pavement Rehabilitation*, organized by School of Infrastructure, IIT Bhubaneswar, November 08, 2019
- “Road Safety Audit at Construction Stage and Case Studies” in Training Programme *Road Safety Audit*, organized by IIT Kharagpur and Asian Institute of Transport Research, New Delhi, at IIT Kharagpur, October 21-25, 2019
- “Concrete Whitetopping for Pavement” in AICTE Short Term Course *New Technology Applications in Road Pavements*, organized by Civil Engineering Department, NIT Rourkela, January 12-16, 2019
- “Continuously Reinforced Concrete Pavement” in AICTE Short Term Course *New Technology Applications in Road Pavements*, organized by Civil Engineering Department, NIT Rourkela, January 12-16, 2019
- “Safety in Road Construction Zones” in Short Term Course under GIAN, MHRD, *Conventional and Intelligent Measures for Enhancing Road Safety*, organized by IIT Kharagpur, December 10-14, 2018
- “Safety in Construction Zones for Roads” in Training Programme *Road Safety Engineering Measures* Organized by IIT Kharagpur and Asian Institute of Transport Research, New Delhi, at IIT Kharagpur, July 30-Aug 03, 2018
- “Sustainable Construction Materials for Infrastructure Development” in AICTE QIP Short Term Course, *Sustainable Materials for Engineering Applications (SMEA-2018)*, organized by Civil Engineering Department, VSSUT, Burla, May 14-19, 2018
- “Recycled Aggregate Concrete as Construction Material” in AICTE QIP Short Term Course, *Sustainable Materials for Engineering Applications (SMEA-2018)*, organized by Civil Engineering Department, VSSUT, Burla, May 14-19, 2018
- “Structural Evaluation of Rigid Pavement” in Short Term Course under GIAN, MHRD, *Maintenance and Preservation Treatment of Highways to Economically Enhance Service Life in*

*Sustainable Manner*, organized by Department of Civil Engineering, National Institute of Technology Rourkela, December 21-30, 2016

- “Rehabilitation of Pavement” in Short Term Course under GIAN, MHRD, *Maintenance and Preservation Treatment of Highways to Economically Enhance Service Life in Sustainable Manner*, organized by Department of Civil Engineering, National Institute of Technology Rourkela, December 21-30, 2016
- “Know Your Roads” in Training Workshop, *Learning Safe Drive - Training for Trainers of Motor Training Schools*, Organized by IIT Kharagpur and Transport Department, Govt. of West Bengal, at IIT Kharagpur, October 3-5, 2016
- “Road Signs” in Training Workshop, *Learning Safe Drive - Training for Trainers of Motor Training Schools*, Organized by IIT Kharagpur and Transport Department, Govt. of West Bengal, at IIT Kharagpur, October 3-5, 2016
- “Sustainable Road Pavement for Urban India” in National Workshop *Sustainable Urban Transportation for Patna: A Curtain Raiser*, organized by Civil Engineering Department, NIT Patna, September 27-28, 2016
- “Concrete Pavement: Salient Features and Design Methods” in QIP Short Term Course, *Recent Advances and Innovation in Transportation Engineering*, organized by Civil Engineering Department, VSSUT, Burla, April 25-30, 2016
- “Structural Evaluation of Rigid Pavement” in National Workshop, *Modern Trends in Design and Maintenance of Rigid Pavements*, organized by Civil Engineering Department, IEST, Shibpur, April 7-9, 2016
- “Sustainable Concrete Roads – Research Needs in Indian Context” Key note lecture, in All India Seminar, *Concrete Roads – An Alternative in Indian Milieu*, organized by Civil Engineering Division, The Institute of Engineers (India), Kolkata, August 27-28, 2015
- “Paneled Concrete Pavement & Whitetopping” in Short Term Course for Engineers, *Developments in Pavement Engineering (DePAVE)*, organized by Department of Civil Engineering, IIT Kharagpur, November, 18-21, 2015
- “Concrete Pavement Design Methods” in *Short Term Course for the Engineers of Uttar Pradesh*, organized by Department of Civil Engineering, IIT Kharagpur, July 2-4, 2013.

### **Reviewer of International Journals & Proceedings**

- Composites Part B, Elsevier
- Engineering Structures, Elsevier
- Transport Reviews, Taylor & Francis
- Journal of Transportation Engineering, ASCE
- International Journal of Pavement Engineering, IJPE
- Case Studies in Construction Materials, CSCM
- Indian Concrete Journal, ICJ
- Proc. for World Conference of Transport Research, WCTR
- Proc. for International Conferences of Transportation Research Group of India, CTRG
- Proc. for the International Conference of Transportation, TPMDC
- Proc. for the International Conference of Concrete Pavement, ICCP

### **Membership of Professional Societies**

- Life Member, Transport Research Group of India
- Life Member, Indian Roads Congress
- Life Member, Institute of Engineers (India)
- Team Member, Track I, World Conference of Transport Research Scientific Committee

## Professional Course

- Participated in "Recent Trends in Concrete Pavement", International Webinar, organized by Central Road Research Institute (CRRI), New Delhi, June 19-20, 2020
- Participated in Executive Course titled "Traffic Safety Principles for Engineers" in the International Conference for Transportation Research Group of India, Mumbai, 2017
- Participated in Executive Course titled "Improving Road Safety and Accessibility" in the International Conference for Transportation Research Group of India, Kolkata, December, 2015

## Departmental Administrative Activities

- Faculty Advisor M. Tech. 1st Year (2017-18, 2018-19, 2019-20, 2020-21)
- Time Table In-Charge M. Tech. (2017-18, 2018-19, 2019-20, 2020-21)
- Exam In-Charge M. Tech. (2017-18, 2018-19, 2019-20, 2020-21)
- Seminar In-Charge (2017-18, 2018-19, 2019-20)
- Admission & Registration In-Charge (2019-20)
- Thesis in-Charge M. Tech. 2nd Year (2016-17)

## Research Projects (current and completed)

- Promoting Stronger Road Safety Regulations in India with an Emphasis on Safe Speed, Speed Management, Enforcement, and Public Awareness (RSR), Co-Investigator, Sponsored by International Federation of Red Cross and Red Crescent Societies (IFRC), Route de Pre-Bois 1, 1214 Vernier, Switzerland, Rs. 84 Lakhs, (2019-21)
- Technological Investigations and Pilot Projects for Alternatives to HMA in Road Construction, Principal Investigator, Sponsored by Kolkata Municipal Corporation, Rs. 21 lakhs, 1.5 years (Ongoing)
- Developing A Spatial Data Infrastructure with Application In Urban Transport, Joint Principal Investigator, Sponsored by DST, Govt. of India, Rs. 28.88 Lakhs, 2 years (2019-21)
- Thin Whitetopping: A Pilot Study for Design, Construction and Performance Evaluation, Principal Investigator, Sponsored by PWD, Govt. of West Bengal with Ultratech Cement Ltd. as Industry Partner, Rs. 40 lakhs, 2.5 years (Ongoing)
- Engineered Cement Composites - A Replacement for Conventional Concrete for Sustainable Infrastructure, Sponsored by MHRD/IIT Kharagpur, under Future of Cities, Co-Investigator (May 2014 to Apr 2018) (completed)
- Development of Pervious Concrete Mix Design and Specification for Pavement Applications, Sponsored by MHRD/IIT Kharagpur, under Future of Cities, Co-Investigator (completed)
- Investigation of Crack Propagation and Fatigue Fracture Characteristics of Cement Concrete Pavement, Principal Investigator, Sponsored by DST, Govt. of India, under WOS-A, Rs. 27.0 Lakhs (completed)

## Consultancy Projects (current and completed)

- Proof Checking of 4-Laning of Aligarh – Kanpur section from Km 289.000 (Design Chainage Km 302.180) to Km 356.000 (Design Chainage Km 373.085) (Package-IV from Naviganj- Mitrasen) of NH-91 in the State of Uttar Pradesh on Hybrid Annuity Mode under Bharatmala Pariyojana, (SRIC Code: LAKS), Consultant-in-Charge, M/s GR Infraprojects Limited, Haryana, Rs. 2.36 Lakhs (2021-22) (ongoing)
- Technical vetting of NDT test reports and Repair methodology for Rehabilitation of Barrackpore ROB 0.00 Km Barrackpore-Barasat road under Barrackpore division, (SRIC Code: TRBB),

Consultant-in-Charge, M/s Sanrachana Structural Strengthening Pvt. Ltd., Thane, Maharashtra, Rs. 2.95 Lakhs (2021-22) (ongoing)

- Consulting Services for Verification of Disbursement Linked Indicators (DLIS) by Independent Verification Agency for West Bengal Inland Water Transport, Logistics and Spatial Development Project of Transport Department, Government of West Bengal, (SRIC Code: DLIW), Co-Consultant, Rs. 35.4 Lakhs, (2021-26)
- Proof Checking of Four Laning of Dwarka (Kuranga) – Khambhaliya – Devariya Section from km 203/500 to 176/500 and from km 171/800 to km 125/000 (designed length 71.890 km) of N, H 151A in the State of Gujarat under Bharatmala project on Hybrid Annuity Mode (Package – I), (SRIC Code: FDBM), Consultant-in-Charge, M/s GR Infraprojects Limited, Haryana, Rs. 5.9 Lakhs (2020-21) (completed)
- Proof Consultancy of 4-laning of Kutchery Chowk Ranchi-Piska More-Biju Para Section (from km 0.000 to km 34.000) of NH-75 with PQC Pavement in the state of Jharkhand (SRIC Code: PCMS), Consultant-in-Charge, M/S Varaha Infra Ltd- Sunil Hitech Engineering Ltd. Rs. 16 Lakhs (completed)
- Traffic Impact Study for the Proposed Development at KPC Medical College and Hospital, Jadavpur (SRIC Code: TIKM), (Consultant-in-Charge: Prof. B. Maitra, Co-Consultant: Dr. S. Maitra and others), Rs. 9.44 Lakhs (2019) (ongoing)
- Traffic Impact Study of the Proposed Commercial Development at 25, N. S. Road, Kolkata - 700001 (SRIC Code: TICD), (Consultant-in-Charge: Prof. B. Maitra, Co-Consultant: Dr. S. Maitra and others), Rs. 7.08 Lakhs (2019) (ongoing)
- Capacity Building for Enhancing Road Safety Knowledge in the State of West Bengal (CEP Code: CEP/STC/17-18/CIV/45), Co-Consultant, Transport Department, Govt. of West Bengal, Rs. 76.0 Lakhs, 1 year (Ongoing)
- Traffic Study in Kolkata and Preparation of Vision Document to Curb and Control Vehicular Pollution in the Twin Cities of Kolkata and Howrah (SRIC Code: RCAA), Co-Consultant, Transport Department, Govt. of West Bengal, Rs. 15.7 lakhs, 2 years (Ongoing)
- Safety Consultancy Service for the Stretch of Four Laning of Sambalpur-Baragarh-Chattisgarh/Odisha Border Section of NH-6 from Km 0.00 to Km 88.00 in the State of Odisha (SRIC Code: SSKK), Co-Consultant, NHAI, Govt. of India, Rs. 52.8 lakhs, 4 years (Ongoing)
- Research and Analysis of Procedures of Issuing Driving License and Technical Audit of Motor Training Schools in West Bengal Under Overall Perspective of Road Safety Code, Transport Department, Govt. of West Bengal, Co-Consultant (2016)(Ongoing)
- Safety Consultancy for Construction of New Bridge/Structure, Repair of Existing Four Lane Highway from Baleswar to Kharagpur Section of NH-60 (Km 0.00 To Km 119.30) in the State of Orissa and West Bengal, and Its Operation and Maintenance under NHDP Phase-I to be executed at BOT (Toll) on DBFOT Pattern, Co-Consultant (August 2015 to August 2018) (Ongoing)

**Jan 1998 to Jun 2001**

**Research Associate**

**Department of Civil Engineering, IIT Bombay**

**Research Project "Role of Fiber Matrix Interface in Fracture Toughness of Brittle Matrix Components"**

- Involved in the sensitivity analysis using finite element method of ceramic matrix composites of different combinations in the research project.
- Responsible for analysis and checking of structural engineering design and drawings of several industrial projects of concrete and steel structures

**Apr 1991 to Jan 1998**

**Design Engineer  
Apex Techno Consultants Pvt. Ltd., Kolkata**

- Responsible for civil and structural engineering design, drawings and detailing works of industrial concrete and steel structures, junction house, pump house, substation buildings, conveyor supporting structures, steel trestles, water tanks, cable trenches, drains & culverts, concrete thickeners and bins etc.
- Involved in several industrial projects like Modernization of Durgapur Steel Plant, Modernization of Rourkela Steel Plant, Bakreshwar Thermal Power Project, TISCO Bhelatand Washery, Primary Washing Station, Dudhichua, Hot Strip Mill Project, Dolvi, IPITATA Sponge Iron Plant, Bulk Cement Terminal, Mangalore, Offsites & Utilities Projects for Spic Petrochemicals Ltd., Graphite Beneficiation Plant, Madras etc.

**July 1989 to Apr 1991**

**Assistant Engineer  
D. Sinha & Associates, Kolkata**

- Responsible for civil and structural engineering design, drawings and detailing works of residential and commercial reinforced concrete buildings.

**Ph.D. thesis (2011)**

**Numerical and Experimental Investigations of Jointed Plain Concrete Pavement**

Development of three-dimensional finite element model for Jointed Plain Concrete Pavement considering slab-foundation interaction, interface behavior between concrete slab and foundation, load transfer at joints by dowel bar and aggregate interlocking mechanisms, effect of temperature variation

Experimental evaluation of different interface characteristics between slab and foundation

Structural evaluation of in-service concrete roads using Falling Weight Deflectometer

Investigation of several design issues, e.g., critical stress due to the combined effect of wheel load & temperature, dowel group action and load transfer efficiency

**M. Tech thesis (2001)**

**Fiber Reinforced Polymer Composites in the Rehabilitation and Strengthening of Reinforced Concrete Columns**

Experimental investigation of fiber reinforced polymer wrapped circular and rectangular concrete columns with varying levels of confinement

Development of analytical models for circular and rectangular confined concrete columns

Development of design methods for confined concrete columns