SOWMIYA CHAWLA (nee L.S)

Associate Professor

Department of Civil Engineering
IIT (ISM), Dhanbad, India

PERSONAL INFO

Date of Birth: 05-06-1984

CONTACT DETAILS

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IIT (ISM) Dhanbad-826004, Jharkhand, India

SKILLS

- Expertise in laboratory physical modeling
- Expertise in finite element modeling, nonlinear analysis, and coupled analysis (time dependent consolidation analysis).
- Software: DEM, ABAQUS, MIDAS/GTS, PLAXIS, FLAC 3D, GeoStudio

ACADEMIC QUALIFICATIONS

Ph.D- *Geotechnical Engineering* in 2013 from Indian Institute of Technology Delhi.

M.E.- *Soil Mechanics & Foundation Engineering* in 2007 from College of Engineering, Guindy, Anna University, Chennai.

B.E.- *Civil Engineering* in 2005 from St. Xavier's College of Engineering, Anna University.

PROFESSIONAL EXPERIENCE

Associate Professor, Department of Civil Engineering, IIT (ISM)

Dhanbad, April 2022 – Till date.

Assistant Professor, Department of Civil Engineering, IIT (ISM) Dhanbad, June 2014 – April 2022.

Research Associate, Department of Civil Engineering, IIT Delhi, July 2013-May 2014.

Assistant Professor, Department of Civil Engineering, Ch. B.P. Govt. Engineering College, Delhi (Guest Faculty), January 2014-May 2014.

Sr. Graduate Engineer (Projects), DLF Projects Ltd., Gurgaon, August 2007-June 2008.

RESEARCH INTEREST

- Geotechnology for Roads and Railway Tracks
- Geosynthetics
- Numerical modelling of Soil Behavior
- Ground Improvement Techniques
- Discrete Element Method

REVIEWER OF JOURNALS

- Journals of Materials in Civil Engineering, ASCE
- Journal of Testing and Evaluation, ASTM International

- Soils and Foundations
- Transportation Infrastructure Geotechnology
- International Journal of Geosynthetics and Ground Engineering
- Indian Geotechnical Journal

AWARDS AND RECOGNITIONS

International

1) 2018 - Recipient of Best Presentation Award from ICSMGE 2018, London, **United Kingdom**

2) 2014 – Recipient of Best Paper Award from International Symposium on Lowland Technology, **Japan**

3) 2012 – Recipient of Best Paper Award in the field of Ground Improvement in Transportation Infrastructure from Australian Research Council's Centre of Excellence for Geotechnical Science and Engineering, **Australia**

National:

4) 2024 - Felicitated by "**Women Achiever Award 2023**" in 98th Foundation Day of IIT(ISM) Dhanbad.

5) 2023 - Selected as '**top 75 Women leaders in India in Geotechnical Engineering**' by Indian Geotechnical Society 'Daughter's of Soil" for the remarkable and extraordinary contributions.

6) 2023 - The research paper titled "Effect of Rail Axle Load on Geosynthetic Reinforced back-to-back Mechanically Stabilized Earth Walls: Experimental and Numerical Studies" by Shilpa S. Vadavadagi and Sowmiya Chawla published in Transportation Geotechnics, Elsevier 2022 has been adjudged as the **best paper on "Earth Retaining Structures". IGS-Kolkata Chapter YGE Award.**

7) 2022 - The research paper titled "Performance Evaluation of Micropiles as a Ground Improvement Technique for Existing Railway Tracks: Finite-Element and Genetic Programming Approach" by Randhir Kumar Gupta and Sowmiya Chawla published in International Journal of Geomechanics, American Society of Civil Engineers (ASCE), December 2021 is adjudged as the **best paper on "Computational Geomechanics". IGS-Delhi Chapter YGE Award.**

8) 2022 - The research paper titled "Application of Geocell Reinforced Coal Mine Overburden waste as Subblast in Railway Tracks on Weak Subgrade" by Lalima Banerjee, Sowmiya Chawla and Sujit Kumar Dash published in Construction and Building Materials, ELSEVIER, 265 (2020) 120774, September 2020 is adjudged as the **best paper on "Ground Improvement". IGS-Baroda Chapter YGE Award.**

9) 2019 – Recipient of 'IEI Young Engineers Award 2019-20 (Civil Engineering)' Award from Institution of Engineers, India

10) 2019 – Recipient of 'Outstanding woman in Engineering (major area of study – Civil Engineering)' Award from Venus International Foundation, India

11) 2018 - Recipient of 'Young Scientist Award' from Venus International Foundation, India

12) 2018 – Best technical paper presenter award in the theme of Transportation Geotechnics in Indian Geotechnical Conference 2018, IISc Bengaluru, for the paper entitled "*Effect of scaling of ballast particles on their morphological characteristics"* (Paper authored by Rahul Raj, Aval Singhal, Maneesh Kumar and Sowmiya Chawla; Presented by Mr. Rahul Raj)

13) 2018 – Best technical paper presenter award in the theme of Transportation Geotechnics in Indian Geotechnical Conference 2018, IISc Bengaluru, for the paper entitled *"Three-dimensional finite element analyses of geocell reinforced railway tracks"* (Paper authored by Lalima Banerjee, Sowmiya Chawla and Sujit Kumar Dash; Presented by Mrs. Lalima Banerjee)

14) 2017 - Recipient of 'Young Geotechnical Engineer Award' for best paper on Solutions of Problematic Soils from Indian Geotechnical Society-Chennai Chapter, India

15) 2013 – Nominated for the Best Ph.D thesis from the Department of Civil Engineering, IIT Delhi, India

16) 2012 - Recipient of CSIR travel grant for participating in ICGIGC 2012, University of Wollongong, Australia

17) 2011 - Recipient of Best Paper Award from Indian Geotechnical Society-Delhi Chapter and Central Road Research Institute, India

18) 2011 - Recipient of Best Paper Award from Indian chapter of International Geosynthetics Society, India

19) 2008-2013 – Recipient of MHRD, Govt. of India scholarship during Doctoral study at Indian Institute of Technology Delhi

20) 2007 - Recipient of Best Paper Award from CIVIL TECH, India

PROFESSIONAL AFFILIATIONS

- Associate Member, American Society of Civil Engineers, A.M. ASCE, Member I.D. 936311
- Individual Member, International Geosynthetics Society, Member ID: 9834
- Life Member, Alumni Association IIT Delhi
- Associate Member, The Institution of Engineers (India), A-548952-1
- Life Member, Indian Geotechnical Society, LM-2934

RESEARCH EXPERIENCE

Ph.D (Geotechnical Engineering):Indian Institute of Technology Delhi (2008 to 2013)

Thesis: Analysis and Experimental Investigations of Railway Tracks with and without Geosynthetic Reinforcement

Advisor: Prof. J.T. Shahu, Prof. K.K. Gupta

ABSTRACT: Railroad track is one of the few geosynthetic applications where a geosynthetic is used for multiple functions, namely, reinforcement, separation, filtration and drainage. Static and cyclic tests were performed on full panel railway track models laid on compacted soil subgrades. Tests were performed on model tracks with two different thicknesses of subballast layer and laid on two different subgrade soils, namely, Dhanaury clay and Delhi silt. Model tracks were adequately instrumented to record induced stresses and displacements in the track. Model tracks were reinforced with geogrid or geotextile or both at suitable interfaces. Track condition after a heavy rainfall was simulated. The models reinforced with geogrid at ballast-subballast interface were found to be more effective in reducing the tie displacements, ballast and subballast strains, and subgrade displacements as compared to the models reinforced with geotextile at subballast-subgrade interface for tracks with Dhanaury clay as subgrade. On the other handed, the models reinforced with geotextile gave better performance in terms of reduced tie and subgrade displacements as compared to the models reinforced with geogrid for tracks laid on Delhi silt subgrade.

Finite element analyses were carried out by using a commercially available finite element software code, MIDAS/GTS. The analyses were carried out using three different sets of constitutive relationships for different track layers: (i) Non-linear analysis- Different track layers were simulated using hyperbolic Duncan Chang model, (ii) Straight analysis- Subgrade soil was simulated using elasto-plastic, Mohr-Coulomb, total stress (undrained) relationship but ballast and subballast were simulated using effective stress (drained), Mohr-Coulomb relationship and (iii) Coupled analysis- Subgrade soil was simulated using a coupled pore water pressure stress, time-dependent formulation under an elasto-plastic, Mohr-Coulomb constitutive relationship but ballast and subballast were simulated using effective stress (drained), Mohr-Coulomb relationship.

The thesis deals with the current problem of Indian Railways, which bear huge economic losses due to constant maintenance of railroad tracks on account of subgrade shear failures and mud pumping problems on clayey subgrades. The work was fully industry oriented and relevant to the present day needs of Indian railways to increase the transportation efficiency by running heavier, longer and faster trains. The work embodied in my thesis was a part of a Department of Science and Technology (DST) Project No: RP02804 entitled “Experimental Investigations and Analysis of Geosynthetics Reinforced Railway Tracks Laid on Clayey Subgrade”.

PUBLICATIONS

- **Refereed Journals: 24**
- **Under review: 02**
- **GSP - ASCE: 03**
- **International Conference: 17**
- **National Conference: 19**
- **Book Chapters: 10**
- **Patent : 01**
- **Technical Report: 02**

Patent Published:

Indian Patent Application No. 202331077988 Dated 16.11.2023

Title of invention: Design of geocell reinforced railway tracks with coal overburden reject recycled as subballast over weak subgrade

Publications in SCI / SCIE Journals Indexed in Web of Science:

1. Vadavadagi, S.S., and **Chawla, S.* (2024).** Prediction and validation of geogrid tensile force distribution in back-to-back MSE walls under rail axle load: Finite-Element and Intelligent techniques, **Environmental Earth Sciences**, **(I.F. 2.727), Q2.**

2. Srivastav, S., **Chawla, S.*,** and Mishra, S. **(2024).** Numerical analysis of moving train induced vibration effect on tunnel, surrounding ground and structure, **Earthquake Engineering and Engineering Vibration, Springer, (I.F. 2.727), Q2.**

3. Chawla A., Sarkar k., Abhishek R., **Chawla S.*** Pasupuleti S and Mishra S **(2023).** "A geotechnical approach to compare different slope stabilization techniques for failed slope in the Darjeeling hills, India", **Environmental Earth Sciences**, 82:376, https://doi.org/10.1007/s12665-023-11054-3

4. Banerjee, L, **Chawla, S*** and Dash, S.K **(2023).** Investigations on cyclic loading behavior of geocell stabilized tracks with coal overburden refuse recycled as subballast material, **Transportation Geotechnics,** Elsevier, https://doi.org/10.1016/j.trgeo.2023.100969**.**
(I.F.-5.245) Q1

5. Vadavadagi, S.S., and **Chawla, S.* (2022**). Effect of rail axle load on geosynthetic reinforced back-to-back mechanically stabilized earth walls: Experimental and numerical studies, **Transportation Geotechnics,** Elsevier, https://doi.org/10.1016/j.trgeo.2022.100907. **(I.F.-5.245) Q1.**

6. Suresh, D., and **Chawla, S.* (2022).** Comparative life cycle assessment of railway subballast layer with natural and coal overburden aggregates in India**, International Journal of Life Cycle Assessment, Springer, (I.F.-6.803), Q2.**

7. Thakur, R.N., Gupta, R.K., Gupta, S.K., Sinha, A., and **Chawla, S*. (2022).** Performance of jute geotextile treated with bitumen emulsion for subgrade improvement, **Arabian Journal of Geosciences, Springer, (I.F. 1.827), Q4.**

8. Gupta, R.K., and **Chawla, S.* (2021).** Performance Evaluation of Micropiles as a Ground Improvement Technique for Existing Railway Tracks – A Finite Element and Genetic Programming Approach**, *International Journal of Geomechanics,*** American Society of Civil Engineers (ASCE), **10.1061/(ASCE)GM.1943-5622.0002270, (I.F. 4.068), Q2.**

9. **Chawla, S.*,** Shahu, J.T and Saurabh, K. (**2021**). Analysis of Cyclic Deformation and Post-Cyclic Strength of Reinforced Railway Tracks on Soft Subgrade, ***Transportation Geotechnics***, Elsevier, **https://doi.org/10.1016/j.trgeo.2021.100535, (I.F. 5.245), Q1**

10. Thakur, R.N., Gupta, S.K., Sinha, A., **Chawla, S.*,** and Vadavadagi, S.S. **(2021).** A durability study of jute geotextile treated with bitumen emulsion, ***Journal of Natural Fibres,*** Taylor and Francis, **https://doi.org/10.1080/15440478.2019.1623749, (I.F. 5.323), Q1**

11. Banerjee, L., **Chawla, S.*,** and Dash, S.K. **(2020).** Application of geocell reinforced coal mine overburden waste as subballast in railway tracks on weak subgrade, ***Construction and Building Materials,*** Elsevier, **https://doi.org/10.1016/j.conbuildmat.2020.120774, (I.F. 6.141), Q1**

12. Banerjee, L., **Chawla, S.*,** and Dash, S.K., **(2020).** Performance Evaluation of Coal Mine Overburden as Potential Sub-Ballast Material in Railways with Additional Improvement using Geocell, ***Journal of Materials in Civil Engineering,*** **American Society of Civil Engineers,** ASCE, **https://doi.org/10.1061/(ASCE)MT.1943-5533.0003269, (I.F. 3.266), Q2**

13. Acharya, B., Sarkar, K., Singh, A.K., and **Chawla, S. (2020).** Preliminary slope stability analysis and discontinuities driven susceptibility zonation along a crucial highway corridor in higher Himalaya, India, ***Journal of Mountain Science***, Springer**, https://doi.org/10.1007s11629-019-5524-6, (I.F. 2.071), Q3**

14. Chawla, S.*, Shahu J.T and Gupta, R. K. **(2019).** Design Methodology for Reinforced Railway Tracks based on Threshold Stress Approach, ***Geosynthetics International***, Institution of Civil Engineers (ICE) London, **https://doi.org/10.1680/jgein.18.00040, (I.F. 3.663), Q2**

15. Banerjee, L., **Chawla, S.*,** Bhandari, G. **(2019).** Experimental and 3-D Finite Element Analyses on Geocell Reinforced Embankments, ***Journal of Testing and Evaluation***, ASTM International, 47(3), **https://doi.org/10.1520/JTE20170686, (I.F. 1.264), Q3**

16. Chawla, A., Pasupuleti, S., **Chawla, S**., Rao, A.CS., Sarkar, K., and Dwivedi, R. **(2019).** "Landslide Susceptibility Zonation Mapping: A Case Study from Darjeeling District, Eastern Himalayas, India", ***Journal of the Indian Society of Remote Sensing***, Springer, **https://doi.org/10.1007/s12524-018-0916-6, (I.F. 1.563), Q4**

17. Chawla, A., **Chawla, S.,** Pasupuleti, S., Rao, A.CS., Sarkar, K., and Dwivedi, R. **(2018).** "Landslide Susceptibility Mapping in Darjeeling Himalayas, India, ***Advances in Civil Engineering,*** Natural Hazards Challenges to Civil Engineering Special Issue, pp:1-17, **https://doi.org/10.1155/2018/6416492, (I.F. 1.924), Q3**

18. **Chawla, S.*,** and Shahu J.T. **(2016).** Reinforcement and mud-pumping benefits of Geosynthetics in railway tracks: Model tests, ***Geotextiles and Geomembranes***, Elsevier, 44, pp:366-380, **http://dx.doi.org/10.1016/j.geotexmem.2016.01.005** ***(Received the IGS-Chennai Chapter YGE Award: Best Paper on solutions for problematic soils),*** **(I.F. 5.292), Q1.**

19. **Chawla, S.*,** and Shahu J.T. **(2016).** Reinforcement and mud-pumping benefits of Geosynthetics in railway tracks: Numerical analysis, ***Geotextiles and Geomembranes***, Elsevier, 44, pp:344-357, **http://dx.doi.org/10.1016/j.geotexmem.2016.01.006, (I.F. 5.292), Q1**

Publications in SCOPUS and other Indexed Refereed Journals:

20. Jotheeshwar, V., Kannaujiya, S., Sarkar, T., Ray, P.K.C., Taloor, A.K., Bisht, M.PS, **Chawla, S.,** Pal, S.K. **(2021).** Comprehensive study on evaluation of Kaliasaur Landslide attributes in Garhwal Himalaya by the execution of geospatial, geotechnical and geophysical methods. ***Quaternary Science Advances,*** ELSEVIER, 3, Article ID:100025, **https://doi.org/10.1016/j.qsa.2021.100025.**

21. **Chawla, S.*,** and Shahu J.T. **(2018).** Numerical Study on the Benefits of Geosynthetic Reinforcement for a Typical Indian Railway Track***, Indian Journal of Geosynthetics and Ground Improvement***, International Geosynthetics Society (India*)*, 7(1), 17-21.

22. **Sowmiya L.S.*,** Shahu J.T. and Gupta K.K. **(2015).** "Performance of geosynthetic reinforcement on the ballasted railway track", ***Lowland Technology International***, International Association of Lowland Technology (IALT): ISSN 1344-9656, 2015; 17 (2): pp: 83-92. **https://doi.org/10.14247/lti.17.2_83**

23. **Sowmiya, L.S.*,** Shahu, J.T. and Gupta, K.K. **(2014).** Stresses and Displacements in Reinforced Tracks, ***Proceedings of the Institution of Civil Engineers - Ground Improvement***, Institution of Civil Engineers London, Vol. 167, (1), pp. 47-59. **http://dx.doi.org/10.1680/grim.13.00009**

24. Ilamparuthi K., and **Sowmiya L.S.*, (2009).** Study on Ground Improvement Techniques for Mitigating Soil Liquefaction, ***International Journal of Earth Sciences and Engineering*****,** 3(1) Spl. pp. 155-161.

List of SCI/SCIE Indexed in Web of Science Journals *under review*:

25. Vadavadagi, S.S., and **Chawla, S.* (2023).** Performance Evaluation of Geosynthetic Reinforced BBMSE Wall Supporting Railway Embankment, Geosynthetics International, Q1

25. Vadavadagi, S.S., and **Chawla, S.* (2022)**. Analysis of Geosynthetic Reinforced Back-to-Back Mechanically Stabilized Earth Walls: Finite Element and Decision Tree Approach, **Arabian Journal of Geosciences**, (I.F. 1.985), Q3

Geotechnical Special Publications, ASCE

26. Banerjee, L., **Chawla, S.*,** and Bhandari, G. **(2018).** "Performance of geocell reinforced embankment over soft soil deposit", ***Geo-China 2018***, ASCE Geotechnical Special Publication, July 23-25, 2018, Hangzhou, China **doi: 10.1007/978-3-319-95750-0_6**

27. Nath, B., **Chawla, S.*,** and Gupta, R. **(2018)**. "A study on utilization of mine overburden as a replacement of base and sub-base layers on rural roads", ***Geo-China 2018,*** ASCE Geotechnical Special Publication, July 23-25, 2018, Hangzhou, China. **doi: 10.1007/978-3-319-95750-0_7**

28. **Chawla, S.*,** Chawla, A and Pasupuleti, S. **(2017).** "A feasible approach for Landslide Susceptibility Map", ***Geo-Risk 2017,*** ASCE Geotechnical Special Publication, June 4-7, 2017, Denver, USA, **https://ascelibrary.org/doi/10.1061/9780784480717.010**

International Conference Publications:

29. Gupta, R.K., and **Chawla, S.* (2024). "**Retrofitting Of Existing Railway Tracks Using Micropiles as A Ground Improvement Technique: Finite-Element and Genetic Programming Approach"**,** 5th International Conference on Transportation Geotechnics, 5th ICTG 2024, Sydney, Australia., November 20-22.

30. Vadavadagi, S.S. and **Chawla, S.* (2024).** "Load-Bearing Behaviour of Geosynthetic Reinforced Soil Bridge Abutment for Railways with Waste Coal OB as Backfill Soil: Model Tests", 5th International Conference on Transportation Geotechnics, 5th ICTG 2024, Sydney, Australia., November 20-22.

31. Vadavadagi, S.S. and **Chawla, S.* (2021).** "Numerical and experimental analysis of internal stability of back-to-back mechanically stabilized earth walls supporting the rail embankment system", 4th International Conference on Transportation Geotechnics, 4th ICTG 2021, Illinois, U.S., May 24-27**.**

32. Banerjee, L., **Chawla, S.*,** Dash, S.K **(2021).** "Finite Element Analyses of Geocell Reinforced Tracks Over Clayey Subgrade", 4th International Conference on Transportation Geotechnics, 4th ICTG 2021, Illinois, U.S., May 24-27**.**

33. Vadavadagi, S.S. and **Chawla, S.* (2018).** "Finite Element Analysis of Reinforced Retaining Wall for Railway Embankment", 20th International Conference on Soil Mechanics and Geotechnical Engineering, ICSMGE 2018, London, U.K., Aug 20-21**.** ***(Received the Best Presentation Award)***

34. Shahu J.T and **Chawla, S. (2018).** "Evaluation of Geosynthetic Reinforced Tracks on Clayey Subgrade", Proceedings of International Symposium on Geotechnics for Transportation Infrastructure, ISGTI 2018, IIT Delhi, April 07-08, 2018, pp: 127-134

35. **Chawla, S.*,** Ajit Kumar Singh, Ravindra Singh Dangi, Yogendra Kumar, Raman Deep, Sahil **(2018).** "Numerical Analysis of Effect of Berms, Shear Keys and Geotextiles on Embankment over Soft Soil", Proceedings of IIRAJ International Conference (ICCI-SEM 2018), Kuala Lumpur, Malaysia, 07 - 08 April 2018, ISBN: 978-93-5281-498-5.

36. **Chawla, S.*,** and Shahu J.T. **(2016).** "Numerical study on the benefits of geosynthetic reinforcement for a typical Indian railway track", 6th Asian Regional Conference on Geosynthetics, New Delhi, India.

37. **Chawla, S.*,** and Shahu J.T. **(2016).** "Model Test and Non-linear Analysis of Geosynthetic Reinforced Railway Tracks Laid on Delhi silt Subgrade", International Conference on Trends and Recent Advances in Civil Engineering, August 11-12, 2016, Noida, India.

38. **Chawla, S.*,** and Shahu J.T. **(2016).** "Stresses and Displacement Response of Geosynthetic Reinforced Railway Track", 10th International Symposium on Lowland Technology, 15-17 Sept.2016, Mangalore, India

39. Shahu. J.T. and **Sowmiya L.S. (2014).** "Study on the benefits of geosynthetic reinforcement on ballasted railway track", International Conference on Advances in Civil and Mechanical Engineering Systems, 23-24 Dec.2014, Surat, India.

40. **Sowmiya, L.S.*,** Shahu, J.T. and Gupta, K.K. **(2014).** "Study on the Performances of the Geosynthetic Reinforcement on the Ballasted Railway Track – Model test and Numerical Analysis", International Symposium on Lowland Technology (ISLT2014), 29th Sept. – 1st Oct. 2014, Saga University, Saga, Japan, pp: 326-331. ***(Received the Best Paper Award).***

41. **Sowmiya, L.S.*,** and Shahu, J.T. **(2014).** "Benefits of Geosynthetic Reinforcement on Typical Indian Railway Tracks". ICSCI 2014, ASCE India Section, Oct. 17-18, 2014, Hitex, Hyderabad, India, pp: 734-743.

42. **Sowmiya, L.S.*, (2014).** "Study on the Benefits of Geosynthetic Reinforcement – Typical Indian Railway Tracks", 10th International Conference on Geosynthetics, 10ICG, Young Geotechnical Engineers Secession, 21-25 Sept. 2014, Berlin.

43. Shahu. J.T., **Sowmiya L.S.*,** and Gupta. K.K. **(2014)**. "Use of Geosynthetics on Railway Tracks", Proceedings of the Deep Foundations, Institute Middle East Conference, April, Dubai, UAE, pp 155-190.

44. **Sowmiya, L.S**.*, Shahu, J.T. and Gupta, K.K. **(2012).** "Effect of Geosynthetic Reinforcement on Clayey Subgrade – Three-Dimensional Finite Element Analysis on Railway Track", Proceedings of the International Conference on Ground Improvement and Ground Control (ICGI 2012), 30 Oct. – 2 Nov. 2012, University of Wollongong, Australia. pp: 863-868. ***(Received the Best Paper Award)***

45. **Sowmiya, L.S**.*, and Ilamparuthi K. **(2012).** "Experimental Investigation on Ground Improvement Techniques for Mitigating Soil Liquefaction", International Conference on Ground Improvement and Ground Control – Transport Infrastructure Development and Natural Hazards Mitigation, ICGI Wollongong, Australia 2012. pp: 653-658

46. Ilamparuthi K., and **Sowmiya L.S**.*, **(2009).** "Study on Ground Improvement Techniques for Mitigating Soil Liquefaction", Proceedings of International Conference on Advances in Concrete, Structural and Geotechnical Engineering-2009, ACSGE-2009, Pilani, pp. 93.

47. Ilamparuthi K., and **Sowmiya L.S**.*, **(2008).** "Study on Ground Improvement Techniques for Mitigating Soil Liquefaction", International Conference on 'Resource Utilization and Intelligent Systems', INCRUIS2K8, Kongu Engineering College, Erode January 2008.

National Conference Publications:

48. Rahul Abhishek, Pragati Saxena and **Chawla, S.*, (2022)**. "Rockwool as a Potential Alternative to Conventional Geosynthetic Materials in Sustainable Ground Improvement Solutions", Proceedings of the Indian Geotechnical Conference 2022 Volume 4 - Geotechnics: Learning, Evaluation, Analysis and Practice (GEOLEAP).

49. Rahul Abhishek, and **Chawla, S.*, (2022)**. "Large-Scale Direct Shear and Discrete Element Modelling Investigations of Ballast, Sub-Ballast, and Sleeper Interface Characteristics in a Railway Track Structure", Proceedings of the Indian Geotechnical Conference 2022 Volume 4 - Geotechnics: Learning, Evaluation, Analysis and Practice (GEOLEAP).

50. Vadavadagi, S.S. and **Chawla, S.*, (2022).** "Tensile Force Distribution of Geogrid Reinforced BBMSE Wall: Numerical Analysis and Model Study – Prediction by ANFIS", Proceedings of the Indian Geotechnical Conference 2022 Volume 4 - Geotechnics: Learning, Evaluation, Analysis and Practice (GEOLEAP).

51. Gupta, R.K., and **Chawla, S.*, (2021).** "Performance Evaluation of Micro Pile Reinforced Existing Railway Tracks Under Static and Moving Loads", Proceedings of Eighth Indian Young Geotechnical Engineers Conference 2021, October 21-23, 2021.

52. Raj, R., Singhal, A., Kumar, M. and **Chawla, S.*, (2018),** "Effect of scaling of ballast particles on their morphological characteristics", Proceedings of Indian Geotechnical Conference-2018, 13-15 December 2018, IISc, Bengaluru. ***(Best Presentation Award)***

53. Vadavadagi, S.S., and **Chawla, S. (2018),** "Behavior of reinforced retaining wall against railway embankment using MIDAS under static and seismic loading", Proceedings of Indian Geotechnical Conference-2018, 13-15 December 2018, IISc, Bengaluru.

54. Gupta, R.K., and **Chawla, S. (2018),** "Finite element analysis of micropile reinforced subgrade in railway tracks", Proceedings of Indian Geotechnical Conference-2018, 13-15 December 2018, IISc, Bengaluru.

55. Banerjee, L., **Chawla, S.,** and Dash, S.K. **(2018),** "Three-dimensional finite element analyses of geocell reinforced railway tracks", Proceedings of Indian Geotechnical Conference-2018, 13-15 December 2018, IISc, Bengaluru. **(Best Presentation Award)**

56. Acharya, B., Kundu, J., Sarkar, K and **Chawla., (2017),** "Stability Assessment of a Critical Slope Near Nathpa Region, Himachal Pradesh, India", Proceedings of Indian Geotechnical Conference-2017, 14-16 December 2017, IIT Guwahati.

57. Banerjee, L., and **Chawla. S.* (2017),** "A Finite Element Approach of Stability Analysis of Over Burden Dump Slope - A Case Study", Proceedings of Indian Geotechnical Conference-2017, 14-16 December 2017, IIT Guwahati.

58. Sowmiya L.S.* and Shahu J.T. **(2015).** "Study on the benefits of the advanced techniques used for instrumentation and monitoring of typical Indian railway track formations", Advances in

Instrumentation, Geo-monitoring and Validation, 23-24 July 2015, Central Board of Irrigation & Power, Malcha Marg, Chanakyapuri, New Delhi.

59. **Sowmiya L.S**.*, Shahu J.T. and Gupta K.K. **(2014).** "Numerical Modeling of Reinforced Railway Track Settlement", Proceedings of Indian Geotechnical Conference-2014, December 18-20, Kakinada, India. pp. 2601-2605

60. **Sowmiya, L.S.*** and Shahu, J.T. **(2012).** "Study on advanced techniques used for instrumentation and monitoring of railway track formations", Indian Geotechnical Conference-2012, IIT Delhi. pp.444-447.

61. **Sowmiya, L.S**.*, Gupta, K.K. and Shahu, J.T. **(2011).** "Railway Tracks on Clayey Subgrade Reinforced with Geosynthetics", Indian Geotechnical Conference-2011, Kochi. pp.529-532.

62. **Sowmiya, L.S**.*, Gupta, K.K. and Shahu, J.T. **(2011).** "Finite Element Analysis of Railway Tracks on Clayey Soils Reinforced with Geosynthetics", Proceedings of Third Indian Young Geotechnical Engineers Conference (3IYGEC), New Delhi-16, pp.103-108. ***(Received the Best Paper Award)***

63. **Sowmiya, L.S**.*, Shahu, J.T. and Gupta, K.K. **(2010).** "Three-Dimensional Finite Element Analysis of Railway Track", Proceedings of Indian Geotechnical Conference-2010, GEOtrendz, IIT Bombay, Vol. II, pp. 909-912.

64. **Sowmiya, L.S**.*, Gupta, K.K., Chille, K., Reddy, R. and Shahu, J.T. **(2009).** "Modification of Pond Ash by Surfactants", Proceedings of Indian Geotechnical Conference-2009, Guntur. pp. 312-315.

65. Ilamparuthi K. and **Sowmiya L.S.* (2008),** "Study on Ground Improvement Techniques for Mitigating Soil Liquefaction", Fourth Indian National Conference on Harbor and Ocean Engineering, INCHOE – 2007, National Institute of Technology Karnataka December 2007. pp. 299-306.

66. Ilamparuthi K. and **Sowmiya L.S**.* **(2007),** "Study on Ground Improvement Techniques for Mitigating Soil Liquefaction", Proceedings of National Symposium on Ground Improvement Techniques, St. Xavier's catholic College of Engineering, CIVILTECH – 2007, pp 76 to 77. ***(Received the Best Paper Award)***

List of papers published as Book Chapter:

67. Banerjee, L., **Chawla, S.*,** and Dash, S.K. **(2020),** "Three-dimensional finite element analyses of geocell reinforced railway tracks", *Geotechnical Characterization and Modelling, Springer,* pp 741-749.

68. Raj, R., Singhal, A., Kumar, M. and **Chawla, S.* (2020),** "Effect of scaling of ballast particles on their morphological characteristics", *Geotechnical Characterization and Modelling, Springer.* DOI: 10.1007/978-981-15-6086-6_62.

69. Vadavadagi, S.S., and **Chawla**, **S.* (2020),** "Behavior of reinforced retaining wall against railway embankment using MIDAS under static and seismic loading", *Geohazards, Springer.*

70. Gupta, R.K., and **Chawla. S.* (2020),** "Finite element analysis of micropile reinforced subgrade in railway tracks", *Geotechnical Characterization and Modelling, Springer.*

71. Banerjee, L., **Chawla, S.*,** and Bhandari, G. **(2019).** "Performance of Geocell Reinforced Embankment over Soft Soil Deposit", *Current Geotechnical Engineering Aspects of Civil Infrastructures, Springer*, pp-69-82.

72. Shahu, J.T. and **Chawla, S. (2019).** "Evaluation of Geosynthetic Reinforced Tracks on Clayey Subgrade", Geotechnics for Transportation Infrastructure – Recent Development, Upcoming Techniques and new Concepts, Springer.

73. Banerjee, L., **Chawla, S.*,** and Bhandari, G. **(2019).** "Performance of Geocell Reinforced Embankment over Soft Soil Deposit", Current Geotechnical Engineering Aspects of Civil Infrastructures, Springer, pp-69-82.

74. Nath, B., **Chawla, S.*,** and Gupta, R. **(2019).** "A Study on Utilization of Mine Overburden as A Replacement of Base and Sub-Base Layers on Rural Roads", *Current Geotechnical Engineering Aspects of Civil Infrastructures, Springer*, pp-83-100.

75. Shahu, J.T. and **Chawla, S. (2018)**. "Evaluation of Geosynthetic Reinforced Tracks on Clayey Subgrade", *Proceedings of International Symposium on Geotechnics of Transportation Infrastructure, ISGTI 2018, IIT Delhi*, April 07-08, 2018, pp: 127-134.

76. Chawla, S.*, Chawla, A., and Pasupuleti, S. **(2017).** "A feasible approach for Landslide Susceptibility Map using GIS", *Geo-Risk 2017, Impact of Spatial Variability, Probabilistic Site Characterization, and Geohazards, ASCE*, pp. 101-110.

Technical Report:

77. **Chawla, S. (2020).** "Coupled three-dimensional non-linear finite element analysis of geocell reinforced railway tracks with mine waste," Completion Report submitted for DST (SERB) Sponsored Project- YSS/2015/000222, New Delhi.

78. Shahu J.T. and **Sowmiya L.S** (2012), "Consultancy for instrumentation and monitoring of construction of formation in field trial of new formation specification for heavy axle load", Report submitted to Research Designs and Standards Organization (Ministry of Railways) Lucknow.

TEACHING AND RESEARCH

- ***Assistant Professor: IIT (ISM), Dhanbad since June' 2014***
- ***Associate Professor: IIT (ISM), Dhanbad since April' 2022***

Subjects Taught at IIT(ISM) Dhanbad:

CEC504_NCEC504 Mechanics Of Geomaterials

CED 523 Ground Improvement and Geosynthetics (PG Course)

CED 524 Railway Geotechnics (PG Course)

CEC 51202 Experimental Geotechnics (PG Course)

CEC 17104 Foundation Engineering (UG Course)

CEC 15102 Geotechnical Engineering – I (UG Course)

CEC 15102 Geotechnical Engineering – II (UG Course)

CEC 15202 Geotechnical Engineering - I Practical (UG Course)

CEC 201 Surveying (UG Course)

CEC 210 Surveying Laboratory (UG Course)

CEH 15101 Rock Mechanics (UG Course, B.Tech Honours)

CEH 16201 In-situ Soil Testing Practical (UG Course)

CEM 18701 Environmental Engineering Sessional (UG Course, Minor)

CEC 13103 Building Material, Construction and Estimation (UG Course)

CEC 13203 Material Testing Practical (UG Course)

MCC12101 Engineering Graphics (UG Course)

CEC 13301 Project Work (UG Course)

CEC 14301 Project Work (4^{th} Semester) (UG Course)

CEC 16301 Project Work (6^{th} Semester) (UG Course)

Teaching Assistant: IIT Delhi

CEL-321 Geotechnical Engineering (UG Course)

CEL-222 Engineering Geology and Soil Mechanics (UG Course)

CEP-200 Design concepts in Civil Engineering (UG Course)

CEL-705 Geoenvironmental Engineering (PG Course)

CEP-702 Geoenvironmental and Geotechnical engineering Lab (PG Course)

Research Associate: IIT Delhi

i. **Research Associate (July 2013 to May 2014):** *Research Project: "Experimental Investigations and Analysis of Geosynthetics Reinforced Railway Tracks Laid on Clayey Subgrade" (RP02804),* Sponsored by Department of Science and Technology.

RESEARCH GUIDANCE (Ph.D)

Sl. No	Student Name	Joining Date	Ph. D Thesis Title	Date of Award	Role
1.	Dr. Lalima Banerjee (17DR000383)	23-03-2017	Study on the Behavior of Geocell Reinforced Tracks with Recycled Mine Spoils as Subballast Material	**Awarded**	**Principal Guide**
2.	Mrs. Barsa Acharya (2016DR000178)	01-08-2016	Slope Stability Analysis: A Himalayan Case Study	**Awarded**	**Co-Guide**
3.	Mr. Randhir Kumar Gupta (17DR000528)	01-08-2017	Strengthening of Existing Railway Tracks for Increased Axle Loads Using Suitable Ground Improvement Techniques	**Awarded**	**Sole Guide**
4.	Miss. Shilpa S. Vadavadagi (17DR000654)	27-12-2017	Experimental and Analytical Solutions of Reinforced Retaining wall for Railway Embankments under Static and Dynamic Loading	**Awarded**	**Sole Guide**
5.	Mr. Rahul Abhishek (20DR0179)	29-08-2020	Combined Three Dimensional Discrete and Finite Element Analysis of Existing Railway Tracks under Heavy Axle Loads and High Speeds – A Sustainable Ground Improvement Solutions	Ongoing	**Principal Guide**
6.	Mr. MD Aman Nimezi (23DR0075)	14-07-2023	Bio Inspired Geotechnics for Geotechnical Infrastructure – An Experimental and Numerical Study	Ongoing	**Sole Guide**
7.	Mr. Arnab Ghosh (23DR0032)	14-07-2023	Development and Application of Latex Backed Natural Geosynthetics	Ongoing	**Principal Guide**
8.	Ravishankar Sahu (23DR0296)	22-12-2023	Dynamic response of monopile based offshore wind turbines: An experimental and numerical study	Ongoing	**Sole Guide**
9.	Akash Sharma (24DP0055)	28-03-2024	Sustainable Pile Design Optimization for Dubai's Sedimentary Rock	Ongoing	**Principal Guide**

10.	Shubham Kumar (24DR0173)	27-06-2024	Evaluating Ground Improvement Techniques in Mitigating Ground Risks: A Combined Approach Using Laboratory, Numerical Modelling and Field Assessment	Ongoing	**Principal Guide**

M.Tech GUIDANCE

Sl.No	Student Name	M.Tech Dissertation Title	Year of award	Role
15.	Richa Tiwari (24MT0548)	Morphological Study of new Lunar Soil Simulant	Ongoing	Sole Guide
14.	Nikil Anand (24MT0270)	Effect of Geocell Reinforcement in Haul Road Design	Ongoing	Sole Guide
13.	Brajesh Ranjan (23MT0107)	Investigation of Interface Behaviour of Bio-inspired surface and Soil	Ongoing	Sole Guide
12.	Suman Jha (23IM0011)	Numerical Modelling of MSW Landfill under various loading conditions	Ongoing	Sole Guide
11.	Avanya Bharti (22MT0041)	Life Cycle Assessment of Conventional Ballast material in Railway Tracks using openLCA software and available field data	2023	Sole Guide
10.	Vivek Bharti (21MT0467)	Investigation of Shear Behaviour of Geogrid Reinforced Railroad Ballast using Discrete Element Method	2023	Sole Guide
9.	Pragati Saxena (20MT0272)	Feasibility Study Of Rockwool As A Sustainable Geosynthetic Material For Ground Improvement Applications	2022	Sole Guide
8.	Kamal Manglani (19MT0170)	Application of Artificial Neural Network for Analysis of Micro-pile Reinforced Railway Tracks	2021	Sole Guide
7.	Kuldeep kumar (19MT0185)	Stability Analysis of Slope - A Himalayan Case Study	2021	Sole Guide
6.	Dhanasree Suresh (19MT0129)	Environmental Life Cycle Assessment of Geocell Reinforced Coal Mine Overburden in Track Bed	2021	Principal Guide
5.	Ankit (18MT0507)	Improvement Of Existing Railway Tracks Using Nailing Techniques	2020	Sole Guide
4.	Akanksha Chauhan (18MT0289)	Static And Seismic Analysis of Back-to-Back Mechanically Stabilised Earth Walls	2020	Sole Guide

3.	Saurabh Kumar (18MT0233)	Numerical Simulation of the Dynamic Response of Geosynthetic Reinforced Ballasted Tracks Under High-Speed Trains	2020	Sole Guide
2.	Miss. Swasti Srivastav (18MT0534)	Numerical Analysis of The Effect of Moving Train in Tunnel on the Surrounding Ground and Structure	2020	Principal Guide
1.	Mr. Jotheeshwar Velayudham (17MT002238)	Ground Improvement Techniques for Mitigation of Landslides using Finite Element Method	2019	Principal Guide

B.Tech GUIDANCE

Completed : 7 Projects

Ongoing : 1 Project

INVITED LECTURES

Sl. No	Name of the course	Date	Lectures	Place
1.	Theme Lecture in the forthcoming WIGC 2024. Invited speaker for a Theme Lecture, First Women Indian Geotechnical Engineering Conference 2024 (WIGC 2024).	March 08-09, 2024	"Ground Improvement Solutions in Railway Geotechnics – A Sustainable and Resilient Transportation Infrastructure"	Anna University, IIT Madras, IGS Chennai Chapter
2.	"Transportation Geotechnics" Invited speaker for a Theme Lecture, 8th Indian Young Geotechnical Engineering Conference 2021.	October 21-23, 2021	"Performance Evaluation of Micro Pile Reinforced Existing Railway Tracks Under Static and Moving Loads"	IIT Madras
3.	"Emerging Trends and Practices in Pavement-Geotechnics" Faculty Development Program (FDP)	September 01 – 06, 2020	"Emerging Trends and Practices of Ground Improvement Techniques in Railway Geotechnology"	TKM College of Engineering, Kollam, India
4.	24 Weeks Professional Development Programme for the Executives of HZL, Vedanta on "Rock Mechanics in Hard Rock	September 03, 2018 to November 23, 2018	"Consolidation and Shear strength Characteristics of Soil"	IIT (ISM) Dhanbad

5.	Professional development programme titled “Rock and Soil Testing In-Situ and Lab Testing” for the executives of NHPC Ltd.	March 02, 2020 to March 06, 2020.	In-situ soil testing, Consolidation and Shear strength Characteristics of Soil	IIT (ISM) Dhanbad

ACCOMPLISHMENTS

- Development of Transportation Engineering Laboratory at IIT (ISM) Dhanbad.
- As Co-Coordinator, contributed in initiating a new PG programme (M.Tech) in Geotechnical Engineering at IIT(ISM) Dhanbad.
- Developed and started new theory PG course of Railway Geotechnics at IIT(ISM) Dhanbad.
- Contributed in the development of UG Course structure for Geotechnical Engineering and Transportation Engineering at IIT(ISM) Dhanbad.
- Contributed in the development of PG Course structure for M.Tech Geotechnical Engineering at IIT(ISM) Dhanbad.

ADMINISTRATIVE RESPONSIBILITIES

Institute level Roles (Present):

- Senate Member
- Honorary Secretary, Indian Geotechnical Society, Dhanbad Chapter
- Centenary Year Celebration, Departmental Representative
- Coordinator, III & Basant 2025

Institute level Roles (Earlier):

- Associate Dean, Media (MBC)
- Dean’s Advisory Council Member under Dean (IRAA)
- IIT JEE Advanced - 2021: RC officer for JoSAA counselling
- Nominated as nodal faculty to coordinate the Female intake of IIT JEE Advanced.
- Executive Member, Scolomin Club
- Co-convener – Srijan

Departmental level Roles (Present):

- DUGC Convener
- Member of Departmental Purchase Advisory Committee (DPAC)
- Member, Placement
- Member of Departmental Purchase Advisory Committee (DPAC)
- Member, DSC

Departmental level Roles (Earlier):

- FIC-Advanced Geotechnical Engineering Laboratory
- FIC- In-Situ Soil Testing Laboratory
- FIC- Transportation Engineering Laboratory
- FIC- Examination
- Member, Interview Board (JRF)
- Member of Departmental Faculty Screening Committee (DFSC)
- Member of Departmental Purchase Advisory Committee (DPAC)
- Member, Departmental Under Graduate Committee (DUGC)
- Member of Departmental Research Committee (DRC)
- Member of Departmental Tender Advisory Committee (TAC)
- Faculty Advisor-B.Tech 2nd year
- Member, Admission Committee (JRF)
- Member, DSC
- Tabulator

Participation in Co-curricular activities:

- Sister Dept. member for DSC of JRF's (ME, AGL and AGP Dept.)
- Sister Dept. member for M.Tech. Project evaluation for AGP Dept.

RESEARCH and LAB DEVELOPMENT

Lab Development:

- FIC-Advanced Geotechnical Engineering Laboratory
- FIC- In-Situ Soil Testing Laboratory
- FIC- Transportation Engineering Laboratory

Equipment's Indented for the development of In-Situ Soil Testing Lab (UG/PG):

- Plate Load Test Setup digital with Data Acquisition System,
- Standard Penetration Test Setup (SPT)

- Static Cone Penetration Test Setup (SCPT)
- Dynamic Cone Penetration Test Setup (DCPT)
- Field Permeability test Apparatus

Equipment's Indented for the development of Transportation Engineering Lab (UG):

- Crushing Value Apparatus
- Aggregate Impact Tester Apparatus
- Density Basket, Buoyancy Balance
- Thickness Gauge and Length Gauge
- Los Angeles Abrasion Testing Machine with Counter
- Universal Penetrometer
- Penetration Cone
- Bitumen Penetration Kit
- Ductility Testing Machine with Digital Display
- Flash Point (Closed) Pensky, Standard Tar Viscometer
- Centrifuge Extractor Range
- Specific Gravity Bottle with Narrow Mouth for Bitumen
- Digi Marshall Apparatus
- Pavement Dynamic Cone Penetrometer
- Digital Benkelman Beam
- CBR Test Apparatus.
- Ring and Ball Apparatus

Equipment's Indented for the development of Geotechnical Engineering Lab/Research Facility:

- Pneumatic Cyclic Actuator with Computer Control Unit

Equipment's Indented for the development of Advanced Geotechnical Engineering Lab:

- Development for interface testing in the large-scale direct test apparatus

SPONSORED PROJECTS

Sl.No	Project Title	Sponsor	Amount	Period	Status	Position
1.	Performance evaluation of subgrade and subballast (blanket) materials for 32.5 MT axle load new Railway siding formation works at 3x 800MW PVUN (Phase-1) Patratu, Ramgarh	BHEL	4.41 Lakhs	2022	Completed	PI
2.	Feasibility study for construction of 10 MTPA Washery on OB Dump from structural strength and stability perspective.	Tata Steel Limited	4.93 Lakhs	2022	Completed	Co-PI
3.	Vulnerability analysis of engineered slopes along NH-05, from Jeori to Tranda, Himachal Pradesh, India	DST (NRDMS)	28.95 Lakhs	2018-2021	Completed	Co-PI

4.	Coupled Three-Dimensional Non-linear Finite Element Analysis of Geocell Reinforced Railway Tracks with Mine Waste	DST, Young Scientist Started Grand	29.59 Lakhs	2016-2019	Completed	PI
5.	Non-linear Modeling of Behavior of Railway Ballasted Structure with Geocell Reinforcement	FRS Project Institute Research Fund	10.0 Lakhs	2015-2018	Completed	PI
6.	Model Tests on Geosynthetic Reinforced Soil Slopes and Embankments	TEQIP – II Minor Project	2.0 Lakhs	2016-2017	Completed	PI
7.	Geosynthetic Reinforced Innovative Permeable Pavements – A Sustainable Design Approach with Structural and Hydrological Characteristics	MORTH	59.96 Lakhs	Submitted	Under Review	PI
8.	Numerical simulation and modelling of rainfall triggered debris flows/ landslides in Uttarakhand Himalaya.	ISRO (Respond)	23.62 Lakhs	Submitted	Under Review	PI
9.	Numerical Simulation and Test Correlation of Low Velocity Impact of Flexible Body on Granular Soil	ISRO (Respond)	29.89 Lakhs	Submitted	Under Review	Co-PI

CONSULTANCY PROJECTS

Sl.No	Project Title	Amount	Role	No. of Co-PIs	Funding Agency	Sanctioned Date	Status
1.	Engagement of M/s IIT-ISM as an Expert Advice and Vetting of IIT (ISM), Dhanbad on the Technical Feasibility Note of Talaipalli Mine submitted by CMPDIL	7.08 Lakhs	Co-PI	2	NTPC Ltd., Ranchi	29-11-21	Completed

OUTREACH ACTIVITIES

- Theme speaker: Indian Geotechnical Conference IGC -2024): Enhancement of Existing Railway Tracks for Higher Speed and Heavier Axle Loads – Innovative Retrofitting Techniques, "Geotechnical Engineering for a Sustainable Tomorrow"
- Special Guest: International Conference on Novel Infrastructure Technique (NITCon-2025), Nirula Institute of Technology, Kolkata.
- Theme speaker: 1st Women Geotechnical Conference 2024, Ground Improvement Solutions in Railway Geotechnics – A Sustainable and Resilient Transportation Infrastructure, IGS- Chennai Chapter, March 2024.
- Keynote Speaker _ one-day technical seminar on the valorization of industrial and mine waste in highway construction. The seminar was organized by the Indian Geotechnical Society (IGS) Dhanbad Chapter in collaboration with the Central Road Research Institute (CSIR-CRRI), New Delhi.
- Topic: Coal Mine Overburden as Potential Geomaterial in Transportation Infrastructure using Geosynthetics
- Co-Coordinator, Expert talk on "Wraparound Reinforcement Technique for Strengthening the Foundation Soil" on April 12, 2024 by Prof. Sanjay Kumar Shukla, Founding Geotechnical and Geoenvironmental Engineering Research Group Leader, Edith Cowan University, Australia - under the aegis of IGS-Dhanbad Chapter.
- Co-Coordinator, Expert Lecture Series, On July 28, 2023, IIT (ISM) Dhanbad had an expert talk on "Sustainable Geotechnics" by Prof. Dipanjan Basu, University of Waterloo, Canada - under the aegis of IGS-Dhanbad Chapter.
- Co-Coordinator, Expert Lecture Series, Prof. P.K. Basudhar, former Professor, IIT Kanpur (Department of Civil Engineering), had delivered an expert talk on " Optimal lower bound solutions to Stability problems in geotechnical Engineering" on March 15, 2024 (Friday) in the Conference Room of Dept. of Civil Engineering under the aegis of IGS-Dhanbad Chapter.
- Co-Coordinator, One-day technical seminar on "Geo-Exploration: Advances and Need of Standardization" under the auspices of IGS Dhanbad Chapter and Bureau of Indian Standards (BIS).
- Coordinator, one-day workshop on "Discrete Element Method" Software training at IIT(ISM) Dhanbad – 2018.
- Coordinator, three days' workshop on "MIDAS/GTS NX" Software training at IIT(ISM) Dhanbad - 2017
- Faculty Advisor, Anti-Ragging squad for Girl students at IIT(ISM) Dhanbad – 2015, 2016, 2017
- Faculty Coordinator, Kural-'15 (In Association with MHRD, Govt. of India) at IIT(ISM) Dhanbad.
- Question paper setter for Anna University, Chennai in 2019, 2020, 2021.
- Question paper setter for JNTU, Hyderabad in 2016, 2017.
- Member, Finance Committee – Indian Geotechnical Conference 2012, IIT Delhi.

- ❖ Member, Finance Committee – Sixth International Congress on Environmental Geotechnics, organized by International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) and IGS, Nov. 8-12, 2010 New Delhi, India
- ❖ Volunteer for 6th ICEG (International Congress on Environmental Geotechnics) 2010, New Delhi.
- ❖ Volunteer for Indian Geotechnical Conference 2012, IIT Delhi.

CONFERENCE PARTICIPATED

Sl. No.	Title of the programme	Duration	Organization
International Conferences:			
1	4th ICTG 2021, Illinois, U.S. (Virtual Event)	May 24-27 2021	International Society for Soil Mechanics and Geotechnical Engineering, University of Illinois, US
2	*20th International Conference on Soil Mechanics and Geotechnical Engineering, London, U.K.*	20-21, Aug 2018	ICSMGE, London, U.K.
3	*Geo Asia 2016, 6th Asian Regional Conference on Geosynthetics*	8 – 11, Nov 2016	International Geosynthetic Society, New Delhi, India.
4	*International Conference on Ground Improvement and Ground Control (ICGI 2012)*	30 Oct – 2 Nov 2012	University of Wollongong, Australia
5	*Sixth International Congress on Environmental Geotechnics, 6ICEG 2010*	8-12 Nov 2010	Indian Geotechnical Society and IIT Delhi, India
6	*International Conference on Advances in Concrete, Structural and Geotechnical Engineering-2009, ACSGE-2009*	25-27 Oct 2009	Birla Institute of Technology and Science, Pilani, Rajasthan, India
National Conferences:			
7	*Women Indian Geotechnical Conference-2024*	March 2024	Indian Geotechnical Society Chennai Chapter
8	*Indian Geotechnical Conference-2023*	Dec 2023	Indian Geotechnical Society Roorkee Chapter
9	*National Conference on Jute Geotextiles*	May 2023	National Jute Development Program (NJDP), is organized by Ministry of Textiles, Government of India in association with, Indian Institute of Science, Bangalore and IGS Bangalore.

10	*Indian Geotechnical Conference-2022*	Dec 2022	Indian Geotechnical Society Kochi Chapter
11	*8th Indian Young Geotechnical Engineers Conference (8IYGEC) 2021*	October 21-23, 2021	Indian Geotechnical Society Chennai Chapter
12	*Indian Geotechnical Conference-2018*	13-15, Dec 2018	IGS Bangaluru Chapter in association with Indian Institute of Science, Bengaluru, India
13	*Indian Geotechnical Conference-2017*	14-16, Dec 2017	IGS Guwahati Chapter (NE) in association with Department of Civil Engineering, IIT Guwahati
14	*Indian Geotechnical Conference-2012 Advances in Geotechnical Engineering*	13-15 Dec 2012	Indian Geotechnical Society Delhi Chapter and IIT Delhi.
15	*Geosynthetics India 2011(IGS Student Paper Award)*	23-24 Sept 2011	Indian Chapter of International Geosynthetics Society (IGS), IIT Madras
16	*Third Indian Young Geotechnical Engineers Conference (3IYGEC) 2011*	25-26 March 2011	Indian Geotechnical Society Delhi Chapter and CRRI
17	*Indian Geotechnical Conference-2010 GEOtrendz*	16-18 Dec 2010	IGS Mumbai Chapter and IIT Bombay
18	*Indian Geotechnical Conference-2006 Geotechnical Engineering-Indian Experience*	14-16 Dec 2006	Indian Geotechnical Society Chennai Chapter and IIT Madras
19	*Intra College Symposium ZYMPOCIV 2005*	17th March 2005	St. Xavier's Catholic College of Engineering, Tamil Nadu
20	*A National Level Technical Symposium on Buildtech & Construct 2004*	3-4 Feb. 2004	St. Xavier's Catholic College of Engineering, Tamil Nadu

Date : 07-02-2025

Place : IIT(ISM) Dhanbad