

Dr. PIYALI SENGUPTA

M. ASCE, M. ACI, A.M. EERI, M. IABSE, M.IEI, L.M. IRC

Associate Professor
Department of Civil Engineering
Indian Institute of Technology (ISM), Dhanbad
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Research Interests:

- Earthquake Engineering
- Blast and Impact
- Structural Materials
- Bridge Engineering
- Damage and Retrofit
- Multi-Hazard Risk
- Tall and Special Buildings
- Fragility Study
- Marine Structures

Academic Qualification:

Doctor of Philosophy (August 2009 – July 2013)

Division of Structures and Mechanics, School of Civil and Environmental Engineering, Nanyang Technological University (NTU), Singapore

CGPA: **4.5/5**

Thesis Title: *Hysteresis Models and Fragility Assessments of Reinforced Concrete Structural Components*; Supervisor: Associate Professor Bing Li

Date of PhD Thesis Submission: *30 July 2013*; Date of PhD Degree Conferment: *1 July 2014*

Bachelor of Engineering (2003 – 2007): Civil Engineering

Indian Institute of Engineering Science and Technology (IIST) Shibpur, West Bengal, India

Marks: **78.61%** (1st class Honours); **Rank 2** in the graduating class of **93** students

Higher Secondary Examination (2003)

Bengal Engineering College Model School, West Bengal, India

Marks: **86.3%**

Secondary Examination (2001)

Bengal Engineering College Model School, West Bengal, India

Marks: **91.63%**

Past Employment History:

Total Years of Research and Industry Experience till May 2026: **14 years 7 months**

- Associate Professor (24.02.2025 – Till Date): 1 year 3 months
Department of Civil Engineering, Indian Institute of Technology (ISM) Dhanbad, India
- Assistant Professor (27.06.2017 – 23.02.2025): 7 years 8 months
Department of Civil Engineering, Indian Institute of Technology (ISM) Dhanbad, India
- Post-Doctoral Fellow (02.11.2016 – 27.06.2017): 8 months

Department of Civil Engineering, Indian Institute of Technology (ISM) Dhanbad, India

- Research Fellow (1.07.2014 – 10.09.2016): 2 years 2 months
Department of Civil and Environmental Engineering, National University of Singapore
- Research Engineer (03.06.2014 – 30.06.2014): 1 month
Department of Civil and Environmental Engineering, National University of Singapore
- Graduate Engineer (1.08.2013 – 31.05.2014): 10 months
Projects & Operations, EMAS-AMC PTE LTD, Singapore
- Project Associate (31.07.2008 – 24.06.2009): 11 months
Department of Civil Engineering, Indian Institute of Technology Kanpur, India
- Engineer (1.08.2007 – 29.07.2008): 1 year
Structural Engineering, M. N. Dastur & Co (Pvt.) Limited, Kolkata, India

Computational Skills:

Structural Engineering and Finite Element Software: ABAQUS, ANSYS, SAP2000, ETABS, STAAD Pro, RISA, SAFE, RESPONSE, ORCAFLEX, FLEXCOM, HARP, UC-WIN/MESH, UC-WIN/WCOMD, CSI Bridge, PERFORM-3D, DIANA, OPENSEES, GiD, RUAUMOKO

Computing Software: MATLAB, MATHCAD

Programming Language: FORTRAN, PYTHON

Drawing and Plotting Software: AUTOCAD, INVENTOR, KALEIDAGRAPH, ORIGIN

Teaching Responsibilities:

- NPTEL Online Course on “Bridge Engineering” since July 2022
- Mechanics of Deformable Solid (CEC503/ NCEC501)– PG and PhD Level Core Course
- Solid Mechanics - Theory (CEC 13101) - B.Tech 3rd Semester
- Solid Mechanics - Practical (CEC 13201) - B.Tech 3rd Semester
- Structural Analysis I - Theory (CEC 14102) - B.Tech 4th Semester
- Structural Analysis I - Practical (CEC 14202) - B.Tech 4th Semester
- Structural Engineering Laboratory (NCEC 210) - B.Tech 4th Semester
- Surveying Laboratory (CEC 210) - B.Tech 4th Semester
- Design of Concrete Structure II - Theory (CEC 16104) - B.Tech 6th Semester
- Design of Concrete Structure II - Sessional (CEH 16701) - Honours Course - B.Tech 6th Semester
- Bridge Engineering - Theory (CEH 17101/CEO 527) - Honours Course/ Elective Course - B.Tech 7th Semester/ B.Tech 8th Semester
- Structures Laboratory - I (CEC 515) - M.Tech 1st Semester
- Bridge Engineering - Theory (CED 514/ CEO 527) - M.Tech/ PhD 2nd Semester
- Term Project - I (NCEC 547) - M.Tech 1st Semester
- Term Project - II (NCEC 548) - M.Tech 2nd Semester

Administrative Responsibilities:

- Nodal Officer of IIT (ISM) Dhanbad for Mission Karmayogi Initiative (January 2025-till date).
- Nodal Officer of IIT (ISM) Dhanbad for Outreach of Swayam Plus Initiative (October 2024-till date).
- Warden, Ruby and Rosaline Hostel (July 2024-April 2025).
- Coordinator, Online Program (NPTEL), IIT (ISM) Dhanbad (November 2021-June 2026).
- Faculty Advisor, Indian Institute of Technology (ISM) Dhanbad ASCE Student Chapter (May 2021-till date).
- International Relation Cell (IRC) Member (April 2019 - July 2023) for promoting internationalization of IIT (ISM), Dhanbad.
- Faculty Advisor - Fine Arts Club (August 2018 – July 2023) at IIT (ISM), Dhanbad.
- Faculty Coordinator (August – November 2018) for 3 months per Semester English Interpersonal Communication Course at IIT (ISM), Dhanbad.
- Faculty Advisor - Anti-Ragging Squad (August - September 2018) in Ruby-1, Ruby Annexe-1 and Rosaline-1 Hostels at IIT (ISM), Dhanbad.
- Faculty-In-Charge (July 2017 – August 2022) for Training of Department of Civil Engineering, IIT (ISM), Dhanbad.
- IRAA Representative (August 2018 – September 2019) from Department of Civil Engineering, IIT (ISM), Dhanbad.
- Vice President (July 2017 - September 2019) of Civil Engineering Society of Department of Civil Engineering, IIT (ISM), Dhanbad.
- Faculty-In-Charge (July 2017 - August 2022) of Structural Laboratory of Department of Civil Engineering, IIT (ISM), Dhanbad.
- Faculty Coordinator, 89th and 90th Annual Sports, IIT (ISM), Dhanbad.
- Organizing Committee Member, Industry Institute Interaction (III) and Basant - 2018, 2019, 2020, IIT (ISM), Dhanbad.
- Organizing Committee Member, 92nd Foundation Day - 2017, IIT (ISM), Dhanbad.
- Organizing Committee Member, Student-Faculty Interaction (2017) between Jawahar Navodaya Vidyalayas, Jharkhand and IIT (ISM), Dhanbad.

R&D Projects at IIT (ISM) Dhanbad:

- ❖ Title of the Project: Component-Level and System-Level Vulnerability Assessment of Various Bridges under Diverse Loading Conditions; Project No: SRDP 1152 I
Funding Organization: SPARSH Engineering Company Private Limited
PI: Dr. Piyali Sengupta; Amount: **52.13594 Lakhs**; Status: Ongoing
- ❖ Title of the Project: Blast Fragment Impact Mitigation of Structures Using Light Weight Steel Cementitious Composite Steel (SCCS) and Functionally Graded Cementitious Composite
Funding Organization: DRDO Armaments Research Board-Extramural Research Grant

Co-PI: Dr. Piyali Sengupta; Amount: **43.5494 Lakhs**; Status: Ongoing

- ❖ Title of the Project: Optimization of High-Speed Railway Viaduct (HSR) Design; Project No: NHSRCL/2022-2023/936/CE
Funding Organization: National High Speed Rail Corporation Limited (NHSRCL)
PI: Dr. Piyali Sengupta; Amount: **33.05 Lakhs**; Status: Ongoing
- ❖ Title of the Project: Performance Evaluation of Box & Box Girder-type Railway Bridges under Sustained and Dynamic Loading; Project No: PIONEER/2022-2023/916/CE
Funding Organization: Pioneer Surveyors Limited
PI: Dr. Piyali Sengupta; Amount: **15.795 Lakhs**; Status: Ongoing
- ❖ Title of the Project: Performance Assessment of Skew and Curved Railway Bridges of Diverse Structural Configurations; Project No: SRCC/2022-2023/908/CE
Funding Organization: S.R. Chaudhuri Consultancy Services Pvt. Ltd.
PI: Dr. Piyali Sengupta; Amount: **10.11 Lakhs**; Status: Ongoing
- ❖ Title of the Project: Multi-Hazard Performance Assessment of Highway Bridges under Seismic and Blast Loading; Project No: ECR/2018/000040
Funding Organization: DST SERB (Early Career Research Award)
PI: Dr. Piyali Sengupta; Amount: **26.85 Lakhs**; Status: Completed
- ❖ Title of the Project: Vulnerability Assessment of Bridges under Dynamic Loading
Funding Organization: TEQIP-III
PI: Dr. Piyali Sengupta; Amount: **2 Lakhs**; Status: Completed
- ❖ Title of the Project: Reliability-based Performance Evaluation of Marine Risers
Project No: FRS(111)/ 2017-18/CE
Funding Organization: IIT (ISM) Dhanbad
PI: Dr. Piyali Sengupta; Amount: **10 Lakhs**; Status: Completed

Major Consultancy Projects at IIT (ISM) Dhanbad:

- ❖ Title of the Project: Proof Checking of Design and Drawing of Various Components of Bridges; Project No: CONS 7374C
Funding Organization: SPARSH Engineering Company Private Limited
Solo CI: Dr. Piyali Sengupta; Amount: **70.8 Lakhs**; Status: Ongoing.

Outreach Activities at IIT (ISM) Dhanbad:

- ❖ **International Conference on Smart Resilient and Sustainable Infrastructure (SRISTI);**
Project No: ORAC 0145
Conveners: Dr. Piyali Sengupta, IIT (ISM) Dhanbad and Mr. Srirup Mitra, Regional Manager, AECOM, Budget: **15.54 Lakhs**;
Venue: IIT (ISM) Dhanbad; Date: 24-25 January, 2025
Organized by: IIT (ISM) Dhanbad and ASCE India Section (Eastern Region)

❖ **International Workshop on Smart and Resilient Bridges**

Venue: IIT (ISM) Dhanbad (Virtual); Date: 3-5 December, 2021

Convener: Dr. Piyali Sengupta, IIT (ISM) Dhanbad.

Scholarships, Awards and Recognitions:

1. Inclusion in BIS CED13 Working Group for Bamboo Reinforced Concrete (BRC) for Structural Use.
2. Inclusion in IRC:11(B-4)/2025-2027 Technical Committee for Concrete (Plain, Reinforced and Pre-Stressed) Structures.
3. Inclusion in IRC:11(B-1)/2025-2027 Technical Committee for General Design Features (Bridges and Grade Separated Structures).
4. Session Chair at ASCE International Conference on Challenges and Innovations for Sustainable Smart Cities (CISSC 2025) organized by American Society of Civil Engineers (ASCE) India Section, Northern Region during February 7-9, 2025.
5. American Society of Civil Engineers (ASCE) India Section, Eastern Region: Treasurer (2023 - 2025)
6. Outstanding Woman Structural Engineer Awards 2021 by Indian Association of Structural Engineers (IAStructE) felicitated on 16 July 2022
7. Grant-In Aid to PhD Student Ms. Vedatrayee Acharya from International Association of Earthquake Engineering in 17th World Conference of Earthquake Engineering for our research paper titled "Seismic Fragility of Buildings resting on Hill Slopes under Main Shock-Aftershock Sequences" (2021)
8. American Society of Civil Engineers (ASCE) India Section, Eastern Region: Secretary (2019 - 2023)
9. Inclusion of Biography in Marquis Who's Who in the World in 2015, 2016 and 2018
10. Research Grant for ASME 2016 35th International Conference on Ocean, Offshore and Arctic Engineering OMAE 2016, Busan, Korea, June 19-24, 2016
11. Research Fellowship from Department of Civil and Environmental Engineering of National University of Singapore (2014 - 2016)
12. Research Grant for paper presentation in 9th Pacific Conference on Earthquake Engineering in Auckland, New Zealand on 14-16 April, 2011 from School of Civil and Environmental Engineering of Nanyang Technological University, Singapore
13. Doctoral Research Scholarship from School of Civil and Environmental Engineering of Nanyang Technological University Singapore (2009 - 2013)
14. Rank certificate in Undergraduate Study for 2nd rank in the Graduating class of 93 students (2007) from Bengal Engineering and Science University, Shibpur (presently IEST Shibpur), West Bengal, India
15. B.E. College Alumni Association (BECAA) Oman Scholarship for Academic Excellence (2006 - 2007) in Bengal Engineering and Science University, Shibpur (presently IEST Shibpur), West Bengal, India

16. Merit Scholarships in Undergraduate study (2004 - 2007) from Bengal Engineering and Science University, Shibpur (presently IIST Shibpur), West Bengal, India
17. State-level Rank in Secondary Examination from West Bengal Board of Secondary Education (2001).

List of Publications:

International Journal Articles (SCI/ SCIE):

1. **Sengupta, P.** and Li, B. “Modified Bouc-Wen Model for Hysteresis Behavior of RC Beam-Column Joints with Limited Transverse Reinforcement”, *Engineering Structures*, Vol. 46, 2013, pp. 392-406. **(Impact Factor: 4.471)**
2. Huang, Z., Li, B. and **Sengupta, P.** “Reliability Assessment of Damaged RC Moment-Resisting Frame against Progressive Collapse under Static Loading Conditions”, *ASCE Journal of Engineering Mechanics*, Vol. 139 (1), 2013, pp. 1-17. **(Impact Factor: 2.62)**
3. Huang, Z., Li, B. and **Sengupta, P.** “Reliability Assessment of Damaged RC Moment-Resisting Frame against Progressive Collapse under Dynamic Loading Conditions”, *Advances in Structural Engineering*, Vol. 17 (2), 2014, pp. 211-232. **(Impact Factor: 1.8)**
4. **Sengupta, P.** and Li, B. “Hysteresis Behavior of Reinforced Concrete Walls”, *ASCE Journal of Structural Engineering*, Vol. 140 (7), 2014, pp. 1-18. **(Impact Factor: 3.312)**
5. **Sengupta, P.** and Li, B. “Seismic Fragility Evaluation of Lightly Reinforced Concrete Beam-Column Joints”, *Journal of Earthquake Engineering*, Vol. 18 (7), 2014, pp. 1102-1128. **(Impact Factor: 3.994)**
6. **Sengupta, P.** and Li, B. “Seismic Fragility Assessment of Reinforced Concrete Structural Walls”, *Journal of Earthquake Engineering*. Vol. 20 (5), 2016, pp. 809-840. **(Impact Factor: 3.994)**
7. **Sengupta, P.** and Li, B. “Hysteresis Modeling of Reinforced Concrete Structures: State of the Art”, *ACI Structural Journal*. Vol. 114 (1), 2017, pp. 25-38. **(Impact Factor: 1.744)**
8. Dutta, S.C., Das, P.K. and **Sengupta, P.** “Seismic Behaviour of Irregular Structures”, *Structural Engineering International*. Vol. 27 (4), 2017, pp. 526-545. **(Impact Factor: 1.056)**
9. Dey, M., **Sengupta, P.** and Chakraborty, S. “Fundamental periods of reinforced concrete building frames resting on sloping ground”, *Earthquakes and Structures*. Vol. 14 (4), 2018, pp. 305-312. **(Impact Factor: 2.018)**
10. Das, P.K., Dutta, S.C. and **Sengupta, P.** “Damage Assessment of Recent Indian Earthquakes: Reviewing Existing RVS Schemes”, *Current Science*. Vol. 119 (2), 2020, pp. 352-363. **(Impact Factor: 1.102)**
11. Roy, D.M., Adhikary, S.D. and **Sengupta, P.** “Assessment of Mechanical and Micro-structural Characterization of Novel Ambient cured Cement-free Composite Concrete”, *Ceramics International*. Vol. 48 (18), 2022, pp. 26519-26538. **(Impact Factor: 5.532)**
12. Acharya, V. and **Sengupta, P.** “Seismic Vulnerability Assessment of Step-Back Hill Buildings through Experimental Investigation, Numerical Simulation and Fragility Estimation”, *Bulletin of Earthquake Engineering*. Vol. 22 (2), 2024, pp. 395-434. **(Impact Factor: 4.6)**

13. Biswas, S. and **Sengupta, P.** “Multi-Hazard Failure Analysis of Highway Bridges under Earthquake and Blast Loading”, *Engineering Failure Analysis*. Volume 186, Part A, 15 March 2026, 110506. **(Impact Factor: 5.7)**
14. Biswas, S. and **Sengupta, P.** “Multi-Hazard Vulnerability of Highway Bridges under Earthquake and Blast Loading”, *Bulletin of Earthquake Engineering*. **(Impact Factor: 4.6) (Accepted for Publication)**
15. Gayathri, KP. and **Sengupta, P.** “An Overview of Seismic Performance of Reinforced Concrete Gravity Dams”, *Engineering Failure Analysis*. **(Impact Factor: 5.7) (Accepted for Publication)**
16. Biswas, S. and **Sengupta, P.** “Seismic Fragility Assessment of Reinforced Concrete Slab Culverts through Experimental and Numerical Investigations”. **(Under Review)**
17. Biswas, S. and **Sengupta, P.** “Blast Performance Assessment of Reinforced Concrete Slab Culverts”. **(Under Review)**
18. Biswas, S. and **Sengupta, P.** “Fragility Evaluation of Bridge Components under Explosion”. **(Under Review)**
19. Acharya, V. and **Sengupta, P.** “Experimental and Numerical Investigations of Step-Back Hill Buildings with Infill for Seismic Vulnerability Assessment”. **(Under Review)**
20. Biswas, S. and **Sengupta, P.** “Seismic Vulnerability Assessment of Reinforced Concrete Slab Culverts under Mainshock-Aftershock Seismic Sequences”. **(Under Review)**
21. Biswas, S. and **Sengupta, P.** “Effect of Seismic Incidence Angles on Performance Assessment of Reinforced Concrete Slab Culverts”. **(Under Review)**
22. Biswas, S. and **Sengupta, P.** “Fire Performance Assessment of Reinforced Concrete Slab Culverts”. **(Under Review)**
23. Acharya, V. and **Sengupta, P.** “Seismic Performance Assessment of Step-Back Hill Buildings under Mainshock-Aftershock Seismic Sequences”. **(Under Review)**
24. Acharya, V. and **Sengupta, P.** “Effect of Opening on Seismic Fragility of Step-Back Hill Buildings with Infills”. **(Under Review)**
25. Gayathri, KP. and **Sengupta, P.** “Seismic Fragility of Reinforced Concrete Gravity Dams”. **(Under Review)**

International Conference Proceedings:

26. **Sengupta, P.** and Li, B. “Hysteresis Behaviour of Reinforced Concrete Non-ductile Beam-Column Joints”, *9th Pacific Conference on Earthquake Engineering*, Auckland, New Zealand, April 14-16, 2011.
27. **Sengupta, P.** and Li, B. “A Hysteresis Model for Seismic Performance Assessment of Reinforced Concrete Walls”, *4th International Conference on Protection of Structures against Hazards*, Singapore, November 15-16, 2012.
28. **Sengupta, P.**, Low, Y.M., Zhang, X, Bernad, P.F.A. and Koh, C.G. “Reliability Assessment of Marine Drilling Risers with Correlated Random Variables”, *Proceedings of the ASME 2016 35th International Conference on Ocean, Offshore and Arctic Engineering OMAE2016*, Busan, Korea, June 19-24, 2016.

29. Krishna, A. and **Sengupta, P.** “Effect of Reinforcement Corrosion on Seismic Performance of Reinforced Concrete Structures,” *World Research Forum for Engineers and Researchers International Conference*, New Delhi, India, November 5, 2017.
30. Krishna, A. and **Sengupta, P.** “Recent Research Advances on Railway Bridges,” *World Research Forum for Engineers and Researchers International Conference*, New Delhi, India, November 5, 2017.
31. Kulsi, S., Jaiswal, U. and **Sengupta, P.** “Fundamental Period of Vertically Irregular Reinforced Concrete Buildings,” *International Conference on Innovations in Structural Engineering*, Osmania University, Hyderabad, India, December 29-31, 2017.
32. Krishna, A. and **Sengupta, P.** “Performance Evaluation of Railway Bridges under Wheel Loading,” *International Conference on Innovations in Structural Engineering*, Osmania University, Hyderabad, India, December 29-31, 2017.
33. Jaiswal, U. and **Sengupta, P.** “Seismic Performance of Reinforced Concrete Buildings with Plan Asymmetry,” *International Conference on Innovations in Structural Engineering*, Osmania University, Hyderabad, India, December 29-31, 2017.
34. Krishna, A. and **Sengupta, P.** “Seismic Vulnerability Assessment of Railway Bridges,” *International Conference on Innovations in Structural Engineering*, Osmania University, Hyderabad, India, December 29-31, 2017.
35. Bhardwaj, P., Krishna, A. and **Sengupta, P.** “Effect of Soil-Structure Interaction on Seismic Vulnerability of Buildings,” *International Conference on Innovations in Structural Engineering*, Osmania University, Hyderabad, India, December 29-31, 2017.
36. Singh, A., Krishna, A. and **Sengupta, P.** “Seismic Fragility Evaluation of Reinforced Concrete Buildings,” *International Conference on Innovations in Structural Engineering*, Osmania University, Hyderabad, India, December 29-31, 2017.
37. Mondal, P., **Sengupta, P.** and Adhikary, S.D. “Vulnerability Assessment of Reinforced Concrete Beams under Impact Loading”, *2nd International Conference on Advances in Concrete, Structural & Geotechnical Engineering*, BITS Pilani, Pilani Campus, India, February 26-28, 2018.
38. Anand, S., **Sengupta, P.** and Adhikary, S.D. “Wind Loading Effects on Tall Reinforced Concrete Buildings”, *2nd International Conference on Advances in Concrete, Structural & Geotechnical Engineering*, BITS Pilani, Pilani Campus, India, February 26-28, 2018.
39. Pranav, A., Shekhar, S., Singh, S., Agarwal, K., Kumawat, C. and **Sengupta, P.** “Structural Applications of Autoclaved Aerated Concrete,” *International Conference on Advances in Construction Materials and Structures*, IIT Roorkee, India, March 7-8, 2018.
40. Shekhar, S., Pranav, A., Singh, S., Agarwal, K., Kumawat, C. and **Sengupta, P.** “Seismic Vulnerability of Autoclaved Aerated Concrete Buildings,” *International Conference on Advances in Construction Materials and Structures*, IIT Roorkee, India, March 7-8, 2018.
41. Kumar, S. and **Sengupta, P.** “Seismic Fragility Assessment of Reinforced Concrete Columns,” *International Conference on Advances in Construction Materials and Structures*, IIT Roorkee, India, March 7-8, 2018.
42. Krishna, A., Kumar, S. and **Sengupta, P.** “Hysteresis Behavior of Reinforced Concrete Columns,” *International Conference on Advances in Construction Materials and Structures*, IIT Roorkee, India, March 7-8, 2018.

43. Krishna, A. and **Sengupta, P.** “Seismic Vulnerability of Corroded Reinforced Concrete Buildings,” *3rd R.N. Raikar Memorial International Conference and Gettu-Kodur International Symposium*, Mumbai, India, December 14-15, 2018.
44. Acharya, V., Krishna, A. and **Sengupta, P.** “Seismic Vulnerability Assessment of Reinforced Concrete Buildings in Hilly Regions,” *16th Symposium on Earthquake Engineering*, IIT Roorkee, India, December 20-22, 2018.
45. Hussain, M.A., Nandy, A. and **Sengupta, P.** “Numerical Investigation of Reinforced Concrete Bridge Piers under Blast Loading,” *7th International Conference on Design and Analysis of Protective Structures*, Seoul, Korea, December 04-06, 2019.
46. Nandy, A., Hussain, M.A. and **Sengupta, P.** “Fragility Functions for Reinforced Concrete Bridge Decks against Explosion,” *7th International Conference on Design and Analysis of Protective Structures*, Seoul, Korea, December 04-06, 2019.
47. Acharya, V. and **Sengupta, P.** “Seismic Fragility of Buildings resting on Hill Slopes under Mainshock-Aftershock Sequences,” *17th World Conference on Earthquake Engineering*, Sendai, Japan, September 27 to October 2, 2021.
48. Biswas, S., Kumar, H. and **Sengupta, P.** “Crack Detection and Analysis of Reinforced Concrete Slab Culvert,” *Symposium on Socio-Technological Aspects of Seismic Disaster and Mitigation*, IIT Guwahati, India, June 23-24, 2022.
49. Biswas, S., Verma, G.K. and **Sengupta, P.** “Seismic Fragility of Corroded Reinforced Concrete Highway Bridges,” *8th International Conference on Structural Engineering, Mechanics and Computation*, Cape Town, South Africa, September 5-7, 2022.
50. Biswas, S., Kulshrestha, S. and **Sengupta, P.** “Blast Performance of Retrofitted Reinforced Concrete Highway Bridges,” *8th International Conference on Structural Engineering, Mechanics and Computation*, Cape Town, South Africa, September 5-7, 2022.
51. Gayathri, K.P. and **Sengupta, P.** “Seismic Fragility Functions of Concrete Gravity Dams,” *13th Structural Engineering Convention (SEC-2023)*, VNIT, Nagpur, December 7-9, 2023.
52. Biswas, S. and **Sengupta, P.** “CNN-Based Crack Detection of Reinforced Concrete Slab Culverts,” *13th Structural Engineering Convention (SEC-2023)*, VNIT, Nagpur, December 7-9, 2023.
53. Gayathri, K.P. and **Sengupta, P.** “Seismic Vulnerability Assessment of Concrete Gravity Dams,” *International Conference on Condition Assessment, Rehabilitation & Retrofitting of Structures - CARRS 2023*, IIT Hyderabad, December 10-13, 2023.
54. Biswas, S. and **Sengupta, P.** “Automatic Crack Detection on Reinforced Concrete Slab Culverts Using Convolutional Neural Networks and Semantic Segmentation,” *International Conference on Condition Assessment, Rehabilitation & Retrofitting of Structures - CARRS 2023*, IIT Hyderabad, December 10-13, 2023.

Book and Book Chapters:

55. **Sengupta, P.** (2021) “Hysteresis Models for Seismic Fragility Assessment of Buildings”, LAP Lambert Academic Publishing, pp. 233, ISBN: 978-620-3-58085-3.
56. Mondal, P., **Sengupta, P.** and Adhikary, S.D. (2018) “Vulnerability Assessment of Reinforced Concrete Beams under Impact Loading”, Bloomsbury Publishing India Pvt. Ltd., pp. 521-527, ISBN: 978-93-87471-69-6.

57. Anand, S., **Sengupta, P.** and Adhikary, S.D. (2018) “Wind Loading Effects on High-Rise Reinforced Concrete Buildings”, Bloomsbury Publishing India Pvt. Ltd., pp. 676-682, ISBN: 978-93-87471-69-6.

Thesis/ Project Reports:

58. **Sengupta, P.**, Koh, C.G. and Low, Y.M. “Reliability-based Downtime Estimation of Ultra Deep-Water Marine Drilling Risers”, NUS-Keppel Joint Report submitted to *National Research Foundation*, Singapore, 2016.
59. **Sengupta, P.**, Koh, C.G. and Low, Y.M. “Comparison Study between Reliability-based and Deterministic Analyses of Marine Drilling Risers”, NUS-Keppel Joint Report submitted to *National Research Foundation*, Singapore, 2015.
60. **Sengupta, P.**, Koh, C.G. and Low, Y.M. “Introduction to Reliability-based Design of Ultra Deep Water Drilling Risers”, NUS-Keppel Joint Report submitted to *National Research Foundation*, Singapore, 2015.
61. **Sengupta, P.**, Koh, C.G. and Low, Y.M. “Identification and Quantification of Geometric and Environmental Uncertainties in Ultra Deep Water Drilling Risers”, NUS-Keppel Joint Report submitted to *National Research Foundation*, Singapore, 2014.
62. **Sengupta, P.**, Nguyen, H., Koh, C.G. and Low, Y.M. “A State-of-art Review of existing technologies for Deep Water Drilling Risers”, NUS-Keppel Joint Report submitted to *National Research Foundation*, Singapore, 2014.
63. **Sengupta, P.**, Vu, K.K. and Lee, T.G. “Calculation of Most Probable Maxima of Vessel Response using Rayleigh Distribution”, *Project Report*, EMAS Group, Singapore, 2014.
64. **Sengupta, P.** and Diddams, J. “Finite Element Analysis of Chain Stopper and Chain Installation Chute under Mooring Line Loads”, *Project Report*, EMAS Group, Singapore, 2014.
65. **Sengupta, P.** “Hysteresis Models and Fragility Assessments of Reinforced Concrete Structural Components”, *Doctor of Philosophy Thesis*, Nanyang Technological University, Singapore, 2014.
66. Wijaya, H., **Sengupta, P.** and Agung, R.S. “Analysis and Design of a 30 Storey Building with Butterfly-shaped Cross-Section under Wind and Seismic Loadings”, *Project Report*, Nanyang Technological University, Singapore, 2010.
67. **Sengupta, P.**, Zhang, Y., Lu, J., Sun, B. and Liang, X. “Generation of Occurrence Loss Exceeding Probability Curve of Building Class II in San Francisco Bay, California affected by 18 Possible Seismic Events”, *Independent Study Report*, Nanyang Technological University, Singapore, 2009.
68. **Sengupta, P.** “Planning and Design of an Industrial Complex”, *Final Year Project Report*, Bengal Engineering and Science University Shibpur, India, 2007.

Research Supervisions at IIT (ISM) Dhanbad:

➤ **PhD Students:**

- **Vedatrayee Acharya (18DR0150)**

Co-guide (if any): None; Status: Degree Awarded

Thesis Title: Probabilistic Performance Evaluation of Structures in Hilly Regions

- **Debjit Mitra Roy (18DP000397)**
Co-guide (if any): Dr. Satadru Das Adhikary
Thesis Title: Mechanical, Durability and Micro-Structural Characterization of Ambient Cured Cement-Free Composite Concrete
Status: Degree Awarded
- **Souvik Biswas (20DR0144)**
Co-guide (if any): None; Status: Revision Submitted
Thesis Title: Multi-Hazard Performance Assessment of Highway Bridges under Seismic, Blast and Fire Loading
- **K Pranava Gayathri (22DR0102)**
Co-guide (if any): None; Status: Ongoing (August 2022 - till date)
Thesis Title: Seismic Fragility of Concrete Gravity Dams incorporating Fluid-Structure-Soil Interactions
- **Amar Kumar (23DR0010)**
Co-guide (if any): None; Status: Ongoing (August 2023 - till date)
Thesis Title: Reliability-based Design Optimization of High-Speed Railway Viaduct
- **Subhrajit Sinha (23DR0326)**
Co-guide (if any): None; Status: Ongoing (December 2023 - till date)
Thesis Title: Development of Ambient-Cured Sustainable High Strength High Ductile Composite

➤ **M.Tech Students:**

- Sandeep Kumar (16MT000729)
Thesis Title: Seismic Vulnerability Evaluation of Reinforced Concrete Columns
Status: Completed
- Shrestha Sankar Kulsi (16MT001069)
Thesis Title: Fundamental Period of Vertically Irregular Buildings
Status: Completed
- Sarita Anand (16MT000802)
Thesis Title: Effect of Wind Loading on Reinforced Concrete Tall Buildings
Co-guide: Dr. Satadru Das Adhikary
Status: Completed
- Priyanka Mondal (16MT000944)
Thesis Title: Vulnerability Assessment of Reinforced Concrete Structures under Impact Loading
Co-guide: Dr. Satadru Das Adhikary
Status: Completed
- Shubham Kumar (17MT0001852)
Thesis Title: Utilization of Fly Ash Cenosphere in Concrete Constructions
Status: Completed
- Kumar Aishwarya (17MT001949)
Thesis Title: Vulnerability of Bridges under Dynamic Loading
Status: Completed

- Santanu Singh (17MT001609)
Thesis Title: Structural Performance Assessment of Railway Bridges
Status: Completed
- Shivani Jindal (17MT001622)
Thesis Title: Seismic Vulnerability Assessment of Corroded Reinforced Concrete Buildings
Status: Completed
- Md Arshad Hussain (18MT0205)
Thesis Title: Numerical Investigation of Reinforced Concrete Bridge Piers against Explosions
Status: Completed
- Arindam Nandy (18MT0384)
Thesis Title: Vulnerability Assessment of Reinforced Concrete Bridge Decks against Explosions
Status: Completed
- Nikita Sani (18MT0459)
Thesis Title: Numerical Investigation of Rockfall Protection Galleries against Impact Loading
Status: Completed
- Snehal M. Katkar (19MT0385)
Thesis Title: Performance Assessment of Marine Drilling Risers
Status: Completed
- Vivek Kumar (19MT0447)
Thesis Title: Reinforced Concrete Slabs subjected to Rock Fall Impact Loading
Status: Completed
- Mohit Bhartiya (19MT0221)
Thesis Title: Seismic Vulnerability of Hill Buildings under Mainshock-Aftershock Sequences
Co-Guide- Dr. Mohit Agrawal (Dept. Applied Geophysics)
Status: Completed
- Sujai Kulshreshtha (20MT0413)
Thesis Title: Blast Resistance of CFRP Retrofitted Highway Bridges
Status: Completed
- Gauri Kumar Verma (20MT0161)
Thesis Title: Seismic Fragility of Corroded Reinforced Concrete Highway Bridges
Status: Completed
- Sahil Chander (21MT0347)
Thesis Title: Development of a Sustainable High Strength High Ductility Concrete
Status: Completed
- Prajwal Dhapte (22MT0263)
Thesis Title: Superstructure Design of High-Speed Railway Viaduct
Status: Completed
- Ayush Chaturvedi (23MT0088)
Co-Guide: Prof. Rita Bento, University of Lisbon, Portugal
Thesis Title: Multi-hazard Performance Assessment of Heritage Structures under Earthquake and Blast
Status: Completed

- Abhishek Kumar Sony (25MT0018)
Thesis Title: Multi-hazard Performance Assessment of Nuclear Power Point Structures under Earthquake and Blast Loading
Status: Ongoing

➤ **B.Tech Students:**

- Anurag Krishna (15JE001086)
Project Title: Seismic Fragility and Hysteresis Response of Reinforced Concrete Columns
Status: Completed
- Utkarsh Jaiswal (15JE001730)
Project Title: Seismic Performance of Reinforced Concrete Buildings with Plan Asymmetry
Status: Completed
- Sumit Shekhar (16JE001973), Abhishek Pranav (16JE002190), Sandeep Singh (16JE002352), Keshav Agrawal (16JE002694), Chetan Kumawat (16JE002697)
Project Title: Performance of Transmission Line Towers under Wind Loading
Status: Completed
- Bhavya Kumar Jain (17JE002734), Ashwani Meena (17JE003163), Arpit Agrawal (17JE003354)
Project Title: Seismic Vulnerability of Cable-Stayed Bridges of Various Structural Configurations
Status: Completed
- Aditya Shrivastava (18JE0040), Himanshu Kumar (18JE0355), Yashraj Meena (18JE0961)
Project Title: Crack Detection and Analysis using Deep Learning Model and OPENCV
Status: Completed
- Vidisha Kumari (19JE0901) and Kothapalli Jagruth (19JE0447)
Project Title: Crack Detection and Analysis using CNN and OPENCV
Status: Completed
- Rajeev Kumar (20JE0761) and Joel Babu (20JE0459)
Project Title: Image-Based Detection of Reinforcement Corrosion
Status: Completed
- Md. Sarfaraz Haroon (21JE0550) and Neeraj Parmar (21JE0593)
Project Title: Wind Performance of Transmission Line Towers
Status: Completed

Professional Membership:

- Member of American Concrete Institute (ACI): Membership ID 1565072
- Member of American Society of Civil Engineers (ASCE): Membership ID 11279785
- Affiliate Member of Earthquake Engineering Research Institute (EERI): Membership ID 19869
- Member of International Association for Bridge and Structural Engineering (IABSE): Membership ID 112378
- Member of Institution of Engineers (India): Membership ID 1727596
- E-Life Member of Indian Road Congress (IRC): Membership No 103560

- Alumni Member of Nanyang Technological University, Singapore
- Life Member of Global Alumni Association of Bengal Engineering and Science University (GAABESU), Shibpur, West Bengal, India

Reviewer of International Journals:

- American Society of Civil Engineers (ASCE) Journal of Structural Engineering
- American Concrete Institute (ACI) Material Journal
- American Concrete Institute (ACI) Structural Journal
- Earthquake Spectra Journal
- Structure and Infrastructure Engineering Journal
- Journal of Building Engineering
- Journal of Earthquake Engineering
- Structures Journal
- Earthquake Engineering and Engineering Vibration Journal
- Bulletin of Earthquake Engineering Journal
- Archives of Civil and Mechanical Engineering
- Arabian Journal of Science and Engineering
- Advances in Civil Engineering Journal
- Journal of The Institution of Engineers (India): Series A from Springer

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Hobbies: Listening Music, Sketching and Painting, Reading Books, Cooking and Poetry.