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Education qualification

PhD – Cochin University of Science & Technology, Cochin, Kerala, 2009.

M.Tech – Structural Engineering & Construction Management (3rd Rank), Kerala University, India, 1993.

B.Tech- Civil Engineering(1st Class with Distinction) – Kerala University, India, 1991.

Research Thesis: ‘Numerical Investigations on Soil Structure Interaction of Multistorey Frames’

Experience

Teaching experience : 29 Years

Research Experience : 18 Years

Industrial Experience : 1 Year

Areas of interest : Interaction studies on structures, Development and studies on special concrete, Performance based design of structures.

Publications : 44

Details of Publications

Journal Publications:

1. Rinku John, S. Deepa Balakrishnan.’ *Investigations on seismic response of Idukki Arch Dam considering concrete ageing*’, Innovative Infrastructure Solutions, August 2025, DOI: 10.1007/s41062-025-02184-7
2. A. Sujatha, S. Deepa Balakrishnan.’ *Assessment of strength and durability of an eco-friendly high strength lightweight concrete by incorporating treated crushed coconut shell aggregates and ground granulated blast furnace slag*’, Environmental Science and Pollution Research, June 2025, DOI:10.1007/s11356-025-36655-2

3. Ajai Joy Nariyelil, Sobha Cyrus, Benny Mathews Abraham, S Deepa Balakrishnan, 'Experimental Analysis of Uplift Behavior in Under-reamed Piles: A Comparative Study in Saturated Clay and Clayey Sand', *Indian Geotechnical Journal*, (2025). DOI: 10.1007/s40098-025-01229-z March 2025
4. Meera Jacob, Deepa Balakrishnan S, ' Numerical Investigations on the Dynamic Response of a Long-Span Arch Bridge Under Heavy Truck Loads', *SSRG International Journal of Civil Engineering*, vol. 12, no. 2, pp. 15-30, 2025 DOI: [10.14445/23488352/IJCE-V12I2P103](https://doi.org/10.14445/23488352/IJCE-V12I2P103)
5. Sujatha A, Deepa Balakrishnan S, 'Development of an eco-friendly high-strength lightweight concrete using pre-treated coconut shell aggregate and ground-granulated blast furnace slag', *Innovative Infrastructure Solutions*, **9**, 191 (2024). DOI: 10.1007/s41062-024-01510-9 May 2024
6. Sujatha A, Deepa Balakrishnan S 'Properties of high strength lightweight concrete incorporating crushed coconut shells as coarse aggregate', *Materials Today: Proceedings*, <https://doi.org/10.1016/j.matpr.2023.03.201> March 2023
7. Meera Jacob, Deepa Balakrishnan S, 'Modal analysis of an RCC long span arch bridge using midas Civil - A validation', *Materials Today: Proceedings*, [Volume 57, Part 2](#), 2022, Pages 460-463 DOI: 10.1016/j.matpr.2022.01.185
8. Athira M, Deepa Balakrishnan, Dipak Kumar Sahoo, 'Predicting the mechanical properties of fibrous concrete by ANN' *International Journal of Engineering Research and Applications* ISSN: 2248-9622, Vol. 11, Issue 4, (Series-II) April 2021, pp. 06-15
9. Meera Jacob, Deepa Balakrishnan S, 'A Review on Soil Structure Interaction Effects and Fatigue Assessment of Long Span Bridges', *Modern trends in Bridge& Tunnel Engineering*, Annual Technical Volume, Civil Engineering Division Board, Institution of Engineers(India), Volume 5, 2020 ISBN 978-81-950662-5-4
10. Binu P, Deepa Balakrishnan, 'Study on the behavior of Self Compacting concrete with fly ash and glass powder as partial replacements for cement', *International Journal of Innovative and Emerging Research in Engineering*, 2017
11. Deepa Balakrishnan S, Paulose K C., 'Workability and strength characteristics of self compacting concrete containing fly ash and dolomite powder' *American Journal of Engineering Research*, 2013
12. Deepa Balakrishnan S, Thomas John V, Job Thomas., 'Properties of fly ash based geo-polymer concrete', *American Journal of Engineering Research*, 2013
13. Deepa. B. S. and Nandakumar, C.G., 'Seismic Soil Structure Interaction Studies on Multistory Frames', *International Journal of Applied Engineering Research and Development*, 2012
14. Deepa. B. S. and Nandakumar, C.G., 'Shock Spectrum Analysis of Multistorey Frames' *Journal of Structural Engineering*, 2010

Conference Publications:

1. Sujatha A, Deepa Balakrishnan, 'A comprehensive review on durability properties of concrete prepared using coconut shells as coarse aggregate', *International Conference on Recent Advances in Civil Engineering (ICRACE 2024)*, December 2024
2. Rinku John, Deepa Balakrishnan, 'Seismic response of Arch Dams: Comparative Study of fluid modeling techniques', *International Conference on Recent Advances in Civil Engineering (ICRACE 2024)*, December 2024
3. Berlin Sabu, Deepa Balakrishnan, 'Impact of irregularities on building seismic responses. A comprehensive review', *International Conference on Recent Advances in Civil Engineering (ICRACE 2024)*, December 2024
4. Meera Jacob, Deepa Balakrishnan, 'Selection of ground motion records for seismic analysis of structures', *International Conference on Recent Advances in Civil Engineering (ICRACE 2024)*, December 2024
5. Berlin Sabu, Deepa Balakrishnan, 'A Review on the Selection of Real and Artificial Seismic Sequences for Analysis', *12th Structural Engineering Convention (SEC 2022)*, NCDMM, MNIT Jaipur, December 2022

6. Rinku John, Deepa Balakrishnan, 'A Review on Seismic Response of Concrete Arch Dam', Innovation, mechanization and Modern Techniques in Civil Engineering, IEI, Jharkhand State Centre, October 2021
7. Nayana R, Sunilkumar N, Deepa Balakrishnan S, 'BIOMASS ASH AS SUPPLEMENTARY CEMENTITIOUS MATERIAL AND IN GEOPOLYMER CONCRETE: A REVIEW', International Conference on Sustainable Technology and Innovation for Industry 4.0, April 2022
8. Savithri S Nair, Deepa Balakrishnan, 'Optimizing the Mixture Proportion and Prediction of Compressive Strength of Polymer Modified Recycled Coarse Aggregate Concrete: A Review', International Virtual Conference on Civil Engineering, Architecture and Sustainable Infrastructure (ICCEASI-21), BBDO, Lucknow, UP, 23-24 Sept 2021 ISBN:978-81-951120-7-4
9. Athira M, Deepa Balakrishnan, Dipak Kumar Sahoo, 'ANN Modeling of Shear Strength of Steel Fibrous Concrete Beams without Stirrups', International web conference in Civil Engineering for a sustainable planet (ICCESP 2021), 5-6 March 2021
10. Soumyan A, Deepa Balakrishnan, 'Corelation between Ground motion and Structural Response of Multi-storied buildings in the performance based Seismic design' 35th Indian Engineering Congress. 18-20 December 2020
11. Savithri S Nair, Deepa Balakrishnan, 'A review on Polymer modified recycled coarse aggregate concrete – A sustainable alternative to normal concrete', International online conference on Macromolecules' ICM 2020
12. Deepa Balakrishnan, Anjali, Salauddin, 'Effect of Shock Absorbers in enhancing the earthquake resistance of a multi storeyed framed building' International Conference on Recent Advances in Civil Engineering, ICRAACE 2020
13. Sujatha A, Deepa Balakrishnan S 'Development of High strength Light weight Coconut Shell Aggregate Concrete' International Conference on Recent Advances in Civil Engineering, ICRAACE 2020
14. Sujatha A, Deepa Balakrishnan S 'Properties of Coconut Shell Aggregate Concrete: A Review' Advanced Research and Innovations in Civil Engineering, ARICE 2019
15. Soumyan K, Deepa Balakrishnan, 'Pushover Analysis of RCC frames based on stress-strain model of Concrete in IS 456 -2000, Structural Engineering Convention SEC -2016.
16. Deepa Balakrishnan and Jayasree P., 'Analysis of Transmission Tower under Lateral Loads – A Review' International Conference on Recent Advances in Civil Engineering' ICRAACE'16
17. Noufiamol; K A, Deepa B S., 'Study on seismic strengthening of RC structures with steel shearwall using FEM' Proceedings of the 2nd International conference on modelling and simulation in Civil Engineering, ICMSC, 2013
18. Deepa Balakrishnan S, Paulose K C., 'Workability and strength characteristics of self compacting concrete containing fly ash and dolomite powder' Proceedings of the CUSAT National Conference on Recent Advances in Structural Engineering RASE 2013
19. Deepa Balakrishnan S, Thomas John V, Job Thomas., 'Properties of fly ash based geo-polymer concrete', Proceedings of the CUSAT National Conference on Recent Advances in Structural Engineering RASE 2013
20. Deepa. B. S. and Nandakumar, C.G., 'Comparicon of Responses of Multistorey Frames based on Numerical Investigations with Discrete and Continuum Soil Models' 7th Structural Engineering Convention, 2010
21. Deepa, B. S., 'Effect of soil structure interaction on the responses of multistory frames', National Conference On Materials And Structures', 2007
22. B S Deepa, C G Nandakumar, 'Finite Element Analysis Of Earthquake Resistant Multistorey Frames', National Conference on Earthquake Analysis And Design Of Structures', 2006
23. Deepa Balakrishnan, Glory Joseph, K S Beena, 'Characteristics of Concrete Reinforced with Coir Fibers' RACE 2004

24. Roy Thomas, Sobha Cyrus, Deepa Balakrishnan, 'Safety in Construction Industry – A Review' International Conference on Safety and Fire Engineering, 1999

Book Chapters Published

1. Sobha Cyrus, Ajai Joy Nariyelil, Minu J, Benny Mathews Abraham, Deepa Balakrishnan S (2024) 'Studies on the Performance of under-reamed piles in clayey sand through model tests' Recent Advances in Civil Engineering, pp 127-132 CRC Press, Taylor & Francis Group
2. Sujatha A, Deepa Balakrishnan S (2020) 'Development of High strength Light weight Coconut Shell Aggregate Concrete' Current Trends in civil Engineering, Vol 104, 978-981-15-8150-2 Springer Nature, Singapore
3. Sujatha A, Deepa Balakrishnan S (2020) 'Properties of Coconut Shell Aggregate Concrete: A Review' Advances in Civil Engineering, Vol.83. ISBN 978-981-15-5643-2 Springer Nature, Singapore
4. Deepa Balakrishnan, Anjali, Salauddin (2020) 'Effect of Shock Absorbers in enhancing the earthquake resistance of a multi storeyed framed building' Advances in Civil Engineering, Vol.83. ISBN 978-981-15-5643-2 Springer Nature, Singapore
5. Meera Jacob, Deepa Balakrishnan (2020) 'A Review on Soil Structure Interaction Effects and Fatigue Assessment of Long Span Bridges' Modern trends in Bridge & Tunnel Engineering, Volume 5, (2020) ISBN 978-81-950662-5-4, Institution of Engineers (India) Publications.
6. Soumyan K, Deepa Balakrishnan (2021), 'Correlation between Ground Motion and Structural Response of Multi-storied Buildings in the Performance Based Seismic Design' Institution of Engineers (India) Publications.

Memberships in professional bodies Life Member of

- 1 Institution of Engineers (India) **Fellow**
- 2 Indian Society for Technical Education
- 3 Indian Geotechnical Society
- 4 Indian Concrete Institute
- 5 Indian Society of Systems for Science & Engineering
- 6 Indian Society of Earthquake Technology
- 7 Earthquake Engineering Research Institute, CA, USA (Associate Member)

Projects Executed

TEQIP III : Development of High strength Light weight Coconut Shell Aggregate Concrete for Structural Applications.

Other Achievements

- 1 **Chief Placement Officer, CUSAT**
- 2 **Head, Department of Civil Engineering, School of Engineering, CUSAT**
- 3 **Chief Superintendent of Examinations, School of Engineering, CUSAT**
- 4 **Member of the AICTE Expert Visit Committee**
- 5 **Member of Expert Visit Committee for KTU – EVC**
- 6 **Subject expert for Kerala Public Service Commission**
- 7 **Department co-ordinator for NBA & NAAC accreditation**
- 8 **Member of various committees under TEQIP II and TEQIP III**
- 9 **Executive member** of Indian Society of Systems for Science & Engineering (ISSSE), Cochin Chapter.
- 10 **Fellow** of IEI; **Life member** of professional bodies like ISTE, IGS, ICI, ISET.
- 11 **Co-ordinator**, International Conference on Recent Advances in Civil Engineering (ICRACE 2024)

- 12 Co-ordinated a 3 day workshop on **Earthquake Engineering for Engineers and Architects** along with the district administration.
- 13 Co-ordinated a STTP on Advancements in Concrete Technology and Special Concrete under TEQIP.
- 14 Organizing Committee Member of the biennial conference of the division RACE since 2004
- 15 **Technical Reviewer** for many conferences like, RACE, RASE.
- 16 **Chaired the technical sessions** for conferences like, ICRACE, RASE etc
- 17 Has acted as **Member** of the syllabus committee for NORKA-ROOTS
- 18 Has acted as **Reviewer for KSCSTC project** for funding
- 19 Has acted as **Resource person for expert lecture** on Engineering Education