BIODATA

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**Name : Dr. Benny Mathews Abraham**

**Designation : Professor & Head, Dept. of Civil Engineering, Albertian**

 **Institute of Science and Technology, Kochi – 682 022.**

 **(Former Professor of Civil Engineering, Cochin University**

 **of Science and Technology).**

**Date of Birth : ` 23/05/1960**

**Name of Father : Late Sri. P.F. Abraham**

**Name of Mother : Smt. Annakutty Abraham**

**Address for Kallumkal House, Grace Valley, University Road,**

**Correspondence : Cochin University P.O., Kochi - 682022**

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**Education qualifications**

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| --- | --- | --- | --- | --- | --- |
| Sl. No. | Degree | Institution  | Year | Specialization | Percentage(CGPA)\_ |
| 1. | BSc (Engg.) | REC Calicut  | 1982 | Civil Engineering | 80.3 |
| 2. | M.Tech | IIT Madras | 1984 | Geotechnical Engineering | 8.33 |
| 3. | Ph.D. | Cochin University of Science & Technology | 1994 | Geotechnical Engineering | - |

**Teaching experience : 38 years**

**Research Experience : 37 years**

**Industrial Experience : 8 months**

**Areas of interest : Soft clays, Grouting**

**Date of joining (CUSAT) : 18-03-1985**

**1st promotion (Date & designation) : 19-02-1991 - Reader**

**2nd Promotion (Date & designation) : 16-03-2001 - Professor**

**Date of Retirement from CUSAT : 31-05-2020**

**Date of Joining AISAT : 01-06-2020**

**Positions held**

1. Dean, Faculty of Architecture, CUSAT
2. Head, Division of Civil Engineering, CUSAT
3. Chairman, Board of Studies in Civil Engineering, CUSAT
4. Member, Academic Council, CUSAT
5. Member in various committees like Construction Monitoring, Erudite Scheme etc.

**Awards and Professional recognition**

1. Won the IGS-ONGC best research paper award in 1988,1991 & 2016

1. My M.Tech Project Thesis is referred in the Text book “Foundation Design” by Nainan P.Kurian
2. One of my research paper is referred in the Text book “Foundation Analysis and Design” by Joseph E. Bowles

**Other Major Assignments**

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| **Sl. No.** | **Year**  | **Type of Institution** | **Type of Activities** |
|  | 2024 | NAAC | Member Coordinator of NAAC Peer Team |
|  | 2024 | IGS  | Chairman, Kochi Chapter |
|  | 2023 | NAAC | Chairman / Member of NAAC Peer Team |
|  | 2023 | IGS | Chairman, Kochi chapter |
|  | 2023 | UPSC | Confidential assignment |
|  | 2022 | IGS | Vice Chairman – Organising CommitteeEditor - Conference Proceedings |
| 1. 1
 | 2022 | NAAC | Member Co-ordinator of NAAC Peer Team |
| 1. 2
 | 2021 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 2
 | 2020 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 3
 | 2020 | UGC | Member of Expert Team |
| 1. 4
 | 2019 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 5
 | 2018 | NAAC | Member Co-ordinator of NAAC Peer Team |
| 1. 6
 | 2017 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 7
 | 2016 | Rajagiri College of Engineering | Member, Departmental Advisory Committee |
| 1. 8
 | 2016 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 9
 | 2015 | NAAC | Member of NAAC Peer Team |
| 1. 10
 | 2014 | IGS Kochi Chapter | Vice Chairman |
| 1. 11
 | 2014 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 12
 | 2013 | AISAT,Cochin | Member, Academic Advisory Council |
| 1. 13
 | 2012 | NAAC | Member Co-ordinator/Member of NAAC Peer Team |
| 1. 14
 | 2012 | Bangalore University | Ph.D. Doctoral Committee Member |
|  | 2011 | Indian Geotechnical Society | Organising Secretary, IGC - 2011 |

**Memberships in professional bodies:** Life member of

1. Institution of Engineers (India)
2. Indian Geotechnical Society
3. Indian Society of Earthquake Technology
4. Indian Society of Technical Education

**Ph D Guidance**

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| **Sl.****No.** | **Title of the Ph D thesis** | **Name of candidate** | **Year** |
| 1. | Studies on the quality of rain water at various land use locations and variations by interaction with domestic rainwater harvesting system | Sri. Roy M. Thomas | 2009 |
| 2. | A Study on the Engineering Behaviour of Grouted Loose Sandy Soils | Sri. Santhoshkumar  T.G | 2010 |
| 3. | A Study on the Utilisation of Plastic Wastes in Stabilised Masonry Blocks | Sri. Subramania  Prasad C.K. | 2013 |
| 4. | A study on mitigating the effect of sulphates in lime stabilised Cochin marine clays | Smt. Anitha G. Pillai | 2014 |
| 5. | A study on the performance of flexible pavements on mature soil subgrades | Smt. B.G. Sreedevi  | 2014 |
| 6. | A study on the effect of organic matter on the engineering behaviour of lime stabilised clays  | Smt. Annie Joy    | 2022 |
| 7. | A study on the permeability of grouted sandy soils | Sri. Sekhar A. C | 2024 |
| 8. | A study on the methods for accelerating the effect of lime treatment on Cochin marine clays. | Smt. Rija Johny | 2025 |

**Currently Guiding 4 students.**

**Research Projects**

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| --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **Year** | **Title** | **Funding organization** | **Amount** | **Role****(PI/CI)** |
| 1. | 1985 | The Nature & Engg. Behaviour of Cochin Marine Clays | DST | 8.37 Lakhs | Co-investigator |
| 2. | 1989 | Creation of Infrastructure in the area of Environmental Engineering | MHRD | 10 Lakhs | Co-investigator |
| 3. | 2004 | Improvement of teaching & Networking facility in Department of Civil Engineering | DST | 10 Lakhs | Principal Investigator |
| 4 | 2005 | Modernization of Survey Laboratory | AICTE | 5 Lakhs | Principal Investigator |
| 5 | 2007 | Grouting An Economical Method for Effective Utilization of Water Resources and for Improvement of Foundation Soils | AICTE | 7.05 Lakhs | Principal Investigator |

**No. of Publications : 96**

International journals : 37

National Journals : 2

International Conferences : 27

National Conferences : 30

**Books : Edited 1 book and 6 Conference**

 **Proceedings**

**Details of Publications**

|  |  |
| --- | --- |
| **Type of publications** | **Papers published** |
| **International Journals** | 1. A study of Geotechnical properties of Cochin Marine Clays, *Journal of Marine Geotechnology.* Philadelphia, July 1987 pp. 189-209.
2. Log-Log Method for Determination of pre consolidation Pressure, *ASTM Geotechnical Testing Journal,* September 1989, pp. 230-237.
3. Determination of Clay Size Fraction of Marine Clays, *ASTM Geotechnical Testing Journal,* March 1991 pp. 103-107.

 1. Improved Techniques for Estimation of Pre consolidation pressure, *Geotechnique,* London, June 1991, pp. 263-268.
2. Physical Properties of Cochin Marine Clays, *Indian Geotechnical Journal,* New Delhi, July 1988, pp. 226-244.
3. Utilization of Quarry Dust to improve the Geotechnical Properties of Soils in Highway Construction- (2005) *ASTM Geotechnical Testing Journal,* Vol. 28, No.4, pp 391-400.
4. Shear strength studies on soil-Quarry dust mixtures (2006) *Journal of Geotechnical and Geological Engineering,* 24, pp. 1163-1179.
5. Determination of Sulphate Content in Marine Clays, *International Journal of Engineering Research and applications,* ISSN:2248-9622, Vol. 1, Issue 3, pp.1012-1016
6. Bearing Capacity Improvement of Loose Sandy Foundation Soils through Grouting, *International Journal of Engineering Research and applications,* ISSN:2248-9622, Vol. 1, Issue 3, pp.1026-1033
7. Determination of Cement Content of Grouted Sandy Soils, *International Journal of Earth Sciences and Engineering ,* ISSN 0974-5904, Volume 04, No 06 SPL, October 2011, pp. 169-172
8. Improvement of Shear Strength of Loose Sandy Soils by Grouting, *Journal of Ground Improvement,* 2012, ICE Publishing, UK, Vol. 166, issue G1, pp. 1-6.
9. Compressive strength behaviour of Plastic Fibre reinforced soil specimens manufactured under varying moulding loads , *Journal of Masonry International,* 2013, Vol. 25, No. 3
10. Artificial Neural Network: Solutions to the ambiguity in perdition of Engineering Properties of fine grained soils, *Journal of Geotechnical and Geological Engineering,* Springer, New York, 2013.
11. Strength improvement of Loose sandy soils through cement Grouting, *Indian Geotechnical Journal*, 2013, ISSN 0971-9555, DOI 10, 100/S 40098-013-0073-3
12. A Critical review of Liquid limit – Plasticity index relationships, *International Journal of Emerging Technology and Advanced Engineering,* ISSN 2250-2459, Vol.4, Issue 2, February 2014, pp. 565-568.
13. Sorption characteristics of stabilised Soil Blocks Embedded with Waste Plastics, *Journal of Construction and Building Materials,* Elsevier Ltd., 2014, 63, 25-32.
14. Influence of Embedded Waste Plastic Fibres on the Improvement of the Tensile Strength of Stabilised Mud Masonry Blocks, *Journal of Materials in Civil Engineering, ASCE,* 2014, DOI: 10.1061 / (ASCE) MT.1943 - 5533.0001165.
15. Role of Bentonite in Improving the efficiency of Cement Grouting in Coarse Sand, *Geotechnical Engineering Journal of the SEAGS & AGSSEA*, Vol. 47, No.3,Sept. 2016.
16. Water Content Ratio: An Effective Substitute for Liquidity Index for Prediction of Shear Strength of Clays, *Journal of Geotechnical and Geological Engineering,* March 2017, DOI 10.1007/s10706-017-0193-0.
17. Applicability of Hyperbolic Method for the Prediction of Shear Strength Parameters from Multistage Direct Shear Tests, Geotechnical Engineering Journal of the SEAGS & AGSSEA Vol. 50 No. 4 December 2019 ISSN 0046-5828
18. Mixing Data for Multivariate Statistical Study of Ground Water Quality, *Journal of Environment Monitoring Assessment,* July 2020, DOI 10.1007/S10661-020-08415-1, Springer Nature, Switzerland.
19. A critical re-examination of the factors influencing determination of organic matter in soils, *Journal of*

*Geotechnical and Geological Engineering, Feb 2021* 1. Effect of organic matter on the shear strength of lime-stabilised clayey soils, *Proceedings of the Institution of Civil Engineers - Ground Improvement* , Jan 2021,

ISSN 1755-0750 | E-ISSN 1755-0769, <https://doi.org/10.1680/jgrim.20.00055>1. Effect of partial replacement of bentonite with biochar in liner soils (2021), *Journal of Biomass Conversion and Biorefinery, Springer Verlag,* ISSN:2190-6815, E-ISSN:2190-6823, <https://doi.org/10.1007/s13399-021-01319-x>
2. Soil Water Characteristic Curves of Compacted Marine Clay (2021), The journal of solid waste technology and management, ISSN: 1088-1697 Volume 47, Number 4, pp. 717-725.
3. Grouting– an effective method for reducing the

 permeability of sandy soils (2023),  Int. J. of Hydrology Science and Technology, Inderscience Publishers, doi : 10.1504/IJHST.2023.100558761. Effect of surcharge loads during curing of lime-stabilised Cochin marine clay (2023), Journal of Ground Improvement, Institution of Civil Engineers –London, <https://doi.org/10.1680/jgrim.22.00051>
2. Effect of Surcharge Loading on Lime‑Treated Cochin Marine Clay Subgrades (2023), Indian Geotech Journal, Springer, <https://doi.org/10.1007/s40098-023-00769-6>
3. Mitigation of Adverse Effects of Sulfates in Cement Treated Marine Clay Subgrades (2023), Geotechnical Engineering Journal of the SEAGS & AGSSEA, Vol. 54, No. 4, December 2023, ISSN 0046-5828.
4. Cracking Behavior and Hydraulic Conductivity of Amended Soils Used in Landfll Cover Under Wetting–Drying Cycles (2024), Indian Geotech Journal, Springer, https://doi.org/10.1007/s40098-023-00854-w
5. Effect of Initial Water Content of Grout on Permeability of Grouted Sandy Soils (2024), Indian Geotech Journal, Springer, <https://doi.org/10.1007/s40098-024-00943-4>.
6. Effect of salinity on geotechnical properties of soft marine clay(2024), Journal of Geomechanics and Geoengineering, <https://doi.org/10.1080/17486025.2024.2338842>.
7. Metakaolin /Slag based Geopolymers — an alternative to lime stabilization of Cochin Marine clays (2024), International Journal of Geotechnical Engineering, Taylor & Francis, <https://doi.org/10.1080/19386362.2024.2388590>.
8. Mitigation Strategies for Strength Reduction in Lime Stabilised Sulphate Bearing Kuttanad Marine Clays (2024),Indian Geotechnical Journal, Springer, <https://doi.org/10.1007/s40098-024-01095-1>.
9. Innovative solution for sulfate challenges in lime stabilisation of Cochin marine clays (2025), Journal of Ground Improvement, Institution of Civil Engineers –London, <https://doi.org/10.1680/jgrim.24.00030>
10. Experimental Analysis of Uplift Behavior in Under-reamed Piles: A Comparative Study in Saturated Clay and Clayey Sand, Indian Geotechnical Journal, Springer, <https://doi.org/10.1007/s40098-025-01229-z>
11. Slag-based geopolymers- a sustainable alternative to lime

 stabilization of Cochin Marine clay deposits, Journal of Waste and Biomass Valorization, Springer, *https://doi.org/10.1007/s12649-025-03031-7* |
| **International Conferences** |  1. Engineering Properties of Cochin Marine Clays and its Stabilisation with Lime, *IX South East Asian Regional Conference,* Bangkok, December 1987.
2. Effect of Admixtures on the Properties of Cement-Bentonite Grouts *2nd International Conference on Ground Improvement Techniques,* Singapore, October 1998.
3. Behaviour of Preloaded Cochin Marine Clays, *2nd International Conference on Ground Improvement Techniques,* Singapore, October 1998.

 4. Analysis of the Consolidation of Preloaded Clays, *11th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering,* Seoul, Korea, August 1999.5. Variability of Geotechnical properties of Marine Clays due to Sample Conditions, *International Conference on Offshore and New shore Geotechnical Engineering,* Bombay, December 1999.6. Improvement of Ground and Highway Sub bases using Quarry Waste, *International Conference on Civil Engineering,* Bangalore, July 2001.7. Influence of Compaction Moisture Content on CBR, *International Conference on Civil Engineering,* IIT Kharagpur, January 2002.8. A study on the suitability of Natural Fibres for Diffusing Explosive spalling in Concrete under Fire *International Conference on Advances in Concrete & Construction (ICACC 2004),* Dec. 2004, Hyderabad.9. Finite Element Analysis of Reinforced Concrete Pile caps, *Proceedings of the International Conference on Materials for the Future,* Jan 17-19, 2008, Thrissur.10. Improvement of Strength Parameters of Loose sandy Soils by Lime Grouting *Proceedings of International Conference on Advance in Materials and Techniques in Civil Engineering,* ICAMAT- 2010Coimbatore ,pp. 343-34511. Water Content – Liquid Limit Ratio for Estimation of Shear Strength of Clayey Soils, *Proceeding of the 7th International Symposium on Lowland Technology,* ISLT 2010 September 16-18, Japan, pp. 60-65 12. Role of Barium chloride in counteracting the effect of sulphates in lime stabilized clays, *The 6th International* *Geotechnical Symposium on Disaster Mitigation in* *Special Geoenvironmental conditions*, Chennai, January 21-23, 2015 13. Contamination of Desiccation Cracks in Marine Clay by Fibre Amendment, *The 6th International* *Geotechnical Symposium on Disaster Mitigation in* *Special Geoenvironmental conditions*, Chennai, January 21-23, 2015 14. The Suitability of Marine Clay – Zeolite Mix as Landfill Liners, *Proceedings of International Conference on* *Advanced Research and Innovations in Civil engineering* *(ARICE 2019)*, Muthoot Institute of Science and  Technology, Kerala. 13 - 14 June, 2019. 15. Effect of Under-ream angle and Bulb spacing on Capacity of Under-reamed piles in Marine clay,  *9th International* *Conference on Deep Foundation Technologies for* *Infrastructure Development in India***,** Hyderabad, Telengana, India, November 14 - 16, 2019. 16. Alternative Materials for Construction of Landfill Cover System- An Overview*, Proceedings of International* *Conference on Recent Advances in Civil Engineering* *(ICRACE2020)*, Cochin University of Science and Technology, Kerala, 15-17 July 2020. 17. Strength behaviour of lime treated organic soil modified using chemical additives, *International Conference on,* *“GREEN HIGHWAY CONSTRUCTION – A Sustainable Approach”** 1. September 2020, NITK., Surathkal, India

18. Paver Tiles as Sustainable Alternative for Low Volume Roads - A state of the Art approach, *International* *Conference on, “GREEN HIGHWAY CONSTRUCTION – A* *Sustainable Approach”* 14-15 September 2020, NITK., Surathkal, India1. Effect of surcharge during curing on cement stabilized marine clay subgrades, *International Conference on, “GREEN HIGHWAY CONSTRUCTION – A Sustainable Approach”* 14-15 September 2020, NITK., Surathkal, India
2. Rating System for Sustainable Pavements- Life Cycle Analysis Approach, *7th Conference on Transportation Systems Engineering and Management (CTSEM 2020),* Trivandrum,December 29-30, 2020
3. Potential application of cement amended marine clay as liner material (2021), *IOP Conference Series: Materials Science and Engineering*, https://doi:10.1088/1757-899X/1114/1/012014

1. Experimental Study on the Impact of Type of Sulphate in Lime Stabilised Clays (2021), *Proceedings of International Web Conference in Civil Engineering for a Sustainable Planet” (ICCESP 2021)* March 5th–6th, 2021.
2. Geopolymeric Stabilization of Soft Clays - A Review, Proceedings of 4th International Conference on Innovations in Civil Engineering, ICICE-2022, January14-15.
3. Studies on the Performance of Under-reamed Piles in Sandy soil through Model Tests, International Conference on Advances in Civil Engineering 2022 20-22 December 2022.
4. Improvement of Soft Clay using Brine Sludge and Cement, Proceedings of 4th International Conference on Innovations in Civil Engineering, ICICE-2022,

 14-15 January.1. Sustainable value addition of effluent treatment plant sludge in construction – a review, Proceedings of the International conference on Sustainable technology and Innovation for Industry 4.0 (icstii 2022) April 21-22, 2022, CUSAT, Kochi.
2. Studies on the performance of underreamed piles in clayey sand through model tests, Proceedings of the International conference on Recent Advances in Civil Engineering (ICRACE 2022), CUSAT.
 |
| **National Journals** |  1. Segmental Compression Index Method for Prediction of Settlements, *Journal of the Institution of Engineers (India),* Vol.76, August 1995, pp. 93-96.
2. Strength Behaviour of Lateritic Soil- Quarry dust mixes, *Journal of New Building Materials & Construction World,* Vol. 7, Issue 2, August 2001, pp. 46-52.
 |
| **National Conferences** | 1. Lime Stabilisation of Cochin Marine Clays, *National Workshop on Ground Improvement (NOWAGI-91),* New Delhi, November 1991.
2. Geotechnical Problems Associated with Construction of Highways over Soft Marine Deposits, *Indian Geotechnical Conference,* Surat, December 1991.
3. Measurement and Control of Viscosity of Bentonite Grouts, *Indian Geotechnical Conference,* Warrangal, December 1991.
4. Role of Coefficient of Consolidation on Pre compression of soft clays, *Indian Geotechnical Conference,* Bangalore, December 1995.
5. Utilization of volume Change Behaviour of Bentonite Grouts to increase Grouting Efficiency, *Indian Geotechnical Conference,* Vadodara, December 1997.
6. A Method of Designing a Preloading System, *Indian Geotechnical Conference,* Vadodara, December 1997.
7. Effect of Admixtures on the Behaviour of Cement Grouts, *Indian Geotechnical Conference,* New Delhi, December 1998.

8. Interaction of Clay Liners with Wastes having Heavy metals, *Indian Geotechnical Conference,* Indore, December 2001.9. Improvement of Bearing Capacity of Sandy soils by GROUTING, *Indian Geotechnical Conference,* Indore, December 2001.10. Use of Quarry Dust in Embankment and Pavement Constructions, *Indian Geotechnical Conference,* Indore, December 2001.11. Urban Housing, fire safety concern and cure, *National Conference on Urban Infrastructure & Quality of Life,* May 2004.12. A study on the Control of Viscosity of Bentonite Grouts to improve Grouting Efficiency, *The First CUSAT National Conference on Recent Advances in Civil Engineering (RACE 2004),* March 2004, Cochin.13. Effect of Preloading on the compressibility Characteristics of Cochin Marine Clays, *The First CUSAT National Conference on Recent Advances in Civil Engineering (RACE 2004),* March 2004, Cochin.14. Improvement of Strength Parameters of Loose sandy Soils By Cement Grouting, *Indian Geotechnica Conference,* *2008,*Bangalore,p.p 305-30815. Influence of Admixtures on Strength of Cement Grouted Soils *Indian Geotechnical Conference 2009,*Guntur,p.p 435-4381. Concrete Masonry Blocks Using Recycled Plastics as Course Aggregate. *Proceeding of the Fourth CUSAT National Conference on Recent Advances in Civil Engineering,* RACE 2010 Sept 16-18, p.p. 80-82

17. Effect of Industrial Wastes on the Physical and Engineering Properties of Soils. *Proceedings of the* *Indian Geotechnical Conference,* IGC-2010 Bombay, p.p.357-36018. Role of Admixtures in Improving the Efficiency of Cement Grouting in Sandy Soils, *Proceedings of Indian Geotechnical Conference,* December 13-15, 2012, Delhi pp. 600-603.19. Influence of Sulphates on the Compressibility Behaviour of Lime Stabilised Cochin Marine Clays, *Proceedings of Indian Geotechnical Conference,* December 13-15, 2012, Delhi pp. 1189-1192.20. Stabilisation of borehole using support fluids,*5th Young Indian Geotechnical Engineers Conference,* March 14-15, 2015, Vadodara, India21.  Compressibility Studies on Cochin Marine Clay Stabilised with Fly Ash and Lime Columnar Inclusions,  *Proceedings of Indian Geotechnical Conference,* SVNIT Surat, Gujarat, 19-21 December 20191. Improvement of Geotechnical Properties of Marine Clay using Waste Foundry Sand, *National Conference on Advances in Sustainable Construction Materials (ASCM 2020),* National Institute of Technology Jamshedpur, August 03-04, 2020
2. Strength Improvement of Lime Treated Organic Soil using Sodium Chloride, *National Conference on Advances in Sustainable Construction Materials (ASCM 2020)*, National Institute of Technology Jamshedpur, August 03-04, 2020
3. Effect of Curing Period on the Geotechnical Properties of lime Treated Organic Soils, *Indian Geotechnical Conference 2020*, Visakhapatnam, December 17-19,2020.
4. Effect of Bentonite Support Fluid on Pile Capacity, *Indian Geotechnical Conference 2020*, Visakhapatnam, December 17-19, 2020.

 26.Effect of Additives on Coefficient of Consolidation of Cochin Marine Clay, *Proceedings of Eighth Indian Young* *Geotechnical Engineers Conference 2021,* IIT Madras, October 21-23, 2021.1. Studies on the Geotechnical Characteristics of Marine

 Clays- A Review, *Proceedings of Eighth Indian Young* *Geotechnical Engineers Conference 2021,* IIT Madras, October 21-23, 2021. 1. Utilization of an Industrial Waste for Soft Clay Stabilization, *Proceedings of Eighth Indian Young Geotechnical Engineers Conference 2021*, IIT Madras, October 21-23, 2021.
2. Effect of Surcharge During Curing on Cement Stabilised Cochin Marine Clay*, Proceedings of Eighth Indian Young Geotechnical Engineers Conference 2021,* IIT Madras, October 21-23, 2021.
3. Utilization of Brine Sludge to improve the Strength and Compressibility characteristics of Soft Clays, Indian Geotechnical Conference, IGC 2022.
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