

## Dr. Surya S S (B. Tech, M. Tech, Ph. D)

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### Work Experience

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June 2016- till date	<p>Assistant Professor in the Department of Civil Engineering, NSS College of Engineering Palakkad, Kerala, India.</p> <ul style="list-style-type: none"><li>- Taught courses such as Geotechnical Engineering I and II, Engineering Mechanics, Advanced Geotechnical Engineering, Geo-environmental Engineering, Ground Improvement Techniques etc.</li><li>- Handled Geotechnical Engineering Laboratory, Transportation Engineering Laboratory, Engineering Drawing and Drafting Lab.</li><li>- Assisted Administrative and Institute as well as student support works</li><li>- Carried out consultancy works from various organizations (soil testing, concrete testing, concrete mix design etc.)</li><li>- Carried out projects financially supported by external sponsoring agency like CERD Kerala.</li></ul>
July 2012- June 2016	<p>Research scholar in the Department of Civil Engineering, Geotechnical Engineering Division, IIT Madras, Chennai, India.</p> <ul style="list-style-type: none"><li>- Gained skills to work and handle advanced laboratory and field testing equipments for geomaterial characterization</li><li>- Design and fabrication of test set ups</li><li>- Teaching Assistant for B. Tech and M. Tech Geotechnical Engineering courses (Theory and Laboratory courses)</li></ul>
July 2010- May 2012	<p>M. Tech student in the Department of Civil Engineering, Geotechnical Engineering Division, NIT Calicut, India.</p> <ul style="list-style-type: none"><li>- Teaching Assistant for B. Tech and M. Tech Geotechnical Engineering courses (Theory and Laboratory courses)</li></ul>

### Education

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2012- 2018 Ph. D	<p>Doctor of Philosophy in Geotechnical Engineering, Indian Institute of Technology, Madras CGPA: 8.42</p>
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2010- 2012 M. Tech	Master of Technology in Geotechnical Engineering, National Institute of Technology, Calicut CGPA: 8.8
2006- 2010 B. Tech	Bachelor of Technology in Civil Engineering, MA College of Engineering, Kothamangalam Marks: 76 %
2004- 2006	Higher Secondary Education Rajagiri H S School, Kalamassery, Kerala Marks: 86 %
2003- 2004	Senior Secondary Education FACT High School, Udyogamandal, Kerala Marks: 86 %

## Publications

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1. Surya, S S and Arnepalli, D N (2019) "A Prediction Model for Gas Permeability of Geomaterials", *Environmental Geotechnics*, ICE, DOI: 10.1680/jenge.15.00062, (Impact factor- 1.147)
2. Surya, S S; Joshmi, S L R and Vimal, S V (2018) "Diffusion Characteristics of Naturally Available Local Clays for their Application in Engineered Landfills" *International Journal of Engineering Trends and Technology*, 63 (1), IJETT, pp: 6-9, (Impact factor- 2.88).
3. Mishra, P N; Surya, S S; Gadi, V K; Joseph, R A and Arnepalli, D N (2017) "Generalized Approach for Determination of Thermal Conductivity of Buffer Materials" *Journal of Hazardous and Toxic Radioactive Waste*, 21 (4), ASCE, pp: 04017005-1-11, (Impact factor- 0.56). (Cited by 5)
4. Surya, S. S., Arsha, L. K. R., Nikhil, J. K. and Arnepalli, D. N. (2017). Coupled flow of heat and moisture through compacted geomaterials. *Geotechnical Frontiers-2017*, Florida, USA, pp: 818-826.
5. Surya, S. S. and Arnepalli, D. N. (2016). Effect of sample thickness on laboratory determination of gas permeability of buffer materials. *Indian Geotechnical Conference, IGC-2016*, December 15-17, Chennai, India, pp:1-4.
6. Surya, S. S., Joseph, R. A. and Arnepalli, D.N. (2014). Modeling and analysis of heat migration through buffer material. *Indian Geotechnical Conference, IGC-2014*, December 18-20, Kakinada, India pp: 1708-1717.
7. Mishra, P. N., Gadi, V. K., Surya, S. S., Arnepalli, D.N. (2014). Appraisal of Safe Placement distance between Canisters in a Typical Deep Geological Repository. *National conference on Geo-Environmental Issues and Sustainable Urban Development, GEN-2014*, October 11-12, Allahabad, India (Best Paper Award). (Cited by 3)
8. Surya, S. S., Joseph, R. A. and Arnepalli, D.N. (2018). Reappraisal of thermal needle probe for evaluation of thermal conductivity of buffer materials (to be communicated).
9. Surya, S. S., Mishra, P. N., and Arnepalli, D.N. (2018). An investigation on significance of temperature on the placement of hazardous waste containing canisters (to be communicated).
10. Krishnan, A., Surya, S. S., and Arnepalli, D.N. (2018). Gas diffusion characteristics of geomaterials (to be communicated).
11. Surya, S. S. and Arnepalli, D.N. (2018). Effect of temperature on sorption characteristics of buffer materials (paper under preparation).

12. Nithya, K. M., Surya, S. S. and Arnepalli, D.N. (2018). Prediction of equivalent column distribution coefficient from batch sorption tests results (paper under preparation)

## Research Contributions

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<p>Long-term Performance Evaluation of Sand-bentonite Buffer Materials to Contain Hazardous Waste</p>	<p><b>Ph.D Thesis</b> The work was aimed to propose a design methodology for identifying suitable buffer material, by evaluating their long-term performance over wide range of environmental conditions and thereby improve the efficacy of DGR to contain hazardous waste.</p>
<p>Design and Fabrication of Experimental set-ups to Characterize Geomaterials</p>	<p><b>Ph.D Thesis</b> As part of the research, experimental test set-ups and testing methodology were developed to estimate thermal characteristics, coupled flow of heat and moisture, diffusion and permeation characteristics of geomaterials.</p>
<p>Demonstrate the long-term performance of buffer materials</p>	<p><b>Ph.D Thesis</b> The long term performance of the buffer material was demonstrated by considering its contaminant, water vapor, and thermal transport properties variation with time using numerical tools.</p>
<p>A Prediction Model for Settlement of Municipal Solid Waste Landfill</p>	<p><b>M.Tech Thesis</b> The work was aimed to characterize the MSW landfills for its short term and long term compressibility and to develop a one dimensional model for estimating their long-term settlement.</p>
<p>Planning with Green Building Concepts and analyzing its Efficiency</p>	<p><b>B.Tech Thesis</b> The work was aimed to plan and analyze the efficiency of a multistoried institutional building by incorporating green building concepts.</p>

## Skills

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<p>Experimental Skills</p>	<p>The following Geotechnical and Geo-environmental experiments were learnt and practiced.</p> <ul style="list-style-type: none"> <li>- All the conventional experiments to study the basic and engineering properties of geomaterials</li> <li>- Flexible wall permeability tests</li> <li>- pH, conductivity, cation exchange capacity (CE ), specific surface area (SSA), and soil suction tests</li> </ul>
<p>Fabrication Skills</p>	<p>Involved in the design and in-house fabrication of the following laboratory apparatus using the Central Workshop facility at IIT Madras.</p> <ul style="list-style-type: none"> <li>- Laboratory thermal probe</li> <li>- Gas diffusion test set-ups</li> <li>- Gas permeability test set-ups</li> <li>- Test set-up for establishing coupled flow of heat and moisture through compacted geomaterials</li> </ul>

	<ul style="list-style-type: none"> <li>- Test set-ups for laboratory (1-g) column flow through experiments</li> <li>- Test set-ups for geotechnical centrifuge (n-g) column flow through experiments</li> </ul>
Sophisticated Analytical Instruments handled	<p>Experienced in operating the following instruments.</p> <ul style="list-style-type: none"> <li>- Atomic absorption spectroscopy, AAS</li> <li>- Gas Chromatograph</li> <li>- UV-vis Spectrophotometer</li> <li>- Ultra gas pycnometer</li> <li>- Laboratory geotechnical centrifuge</li> <li>- Flexible wall permeability apparatus</li> <li>- Time domain reflectometry (TDR) setup</li> <li>- Dew-point potentiometer, WP-4</li> <li>- Data acquisition systems</li> <li>- Environmental test chamber</li> <li>- Water quality analyzer</li> <li>- Melt Flow Indexer (MFI)</li> </ul>
Teaching Skills	<p>Teaching and research assistant at NIT Calicut for two years and IIT Madras for four years. Working as Assistant professor at NSS College of Engineering Palakkad now. Taught the following subjects.</p> <ul style="list-style-type: none"> <li>- Soil Mechanics</li> <li>- Geotechnical Engineering I and II</li> <li>- Advanced Geotechnical Engineering</li> <li>- Ground Improvement Techniques</li> <li>- Engineering Mechanics</li> <li>- Design of Concrete Structures I</li> <li>- Geo-environmental Engineering</li> </ul>
Software Skills	<p>Familiar with softwares PLAXIS, MS Office, AutoCAD, STAAD Pro, Primavera, Sure Track, Candy, SV Heat, Lab View, DAS100 Logging Software, Soil Vision, Logger Net, Pollute, PANalytical X'Pert High Score, STANMOD, SOLAR AAS Software, Agilent Chemstation.</p>

## Areas of Interest

1. Characterization of geomaterials
2. Buffer material characterization
3. Ground improvement techniques
4. Solid waste management
5. Soil treatment and land reclamation
6. Soil stabilization
7. Geosequestration

## References

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| 1. Dr. Dali Naidu Arnepalli<br>(Thesis supervisor-Ph.D) | Associate Professor<br>Geotechnical Engineering Division<br>Department of Civil Engineering<br>IIT Madras, Chennai, India<br>E-mail: arnepalli@iitm.ac.in |
| 2. Dr. Santosh G. Thampi<br>(Thesis supervisor-M.Tech)  | Professor<br>Department of Civil Engineering<br>NIT Calicut, India<br>E-mail: santosh@nitc.ac.in  |

## Vision Statement

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To be a part of dynamic and progressive institute, that offers challenging working environment where one can utilize potentials and competence in a positive direction and contribute towards overall objectives of the institute.

## Declaration

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I, Dr. Surya S.S, declare that the above information is true and correct to the best of my knowledge and nothing has been concealed or distorted.

Dr. Surya SS

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