



Department of Civil Engineering

Research & Education Center Advanced Soil Engineering

The intention behind establishing this Research & Education Center is to investigate the characteristics of Soil under various loading conditions. The following objectives are anticipated to be achieved by establishing this research center.

1. **Knowledge Expansion** :

- The center is expected to explore in depth knowledge of specific advanced topics in the field of Geotechnical Engineering.

2. **Innovation** :

- After exploring various specific topics, the center acts as platform towards innovation and may lead to developing new theories.

3. **Education and Training** :

- Provides opportunities for training and education to Undergraduate and post graduate students.
- Helps in conducting various workshops, seminars or programs related to the research.

4. **Collaboration** :

- Helps in Collaborating with various researchers among the world and industries. Thereby facilitating network with various stakeholders.
- Encourages in interdisciplinary approaches by sharing and exchanging the thoughts.

5. **Addressing Societal Challenges** :

- Research Center is focused in addressing various societal problems considering economic, environmental and sustainability issues.



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Major equipment's that the Department is Offering for Research:



5-ton Loading Frame with Data Acquisition System used to apply load on different type of materials



Cone Drop Test to validate the puncture resistance of a Geotextile



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Permeability Test Setup for Geotextiles



Grab Tensile Strength to examine the tensile strength of a Geosynthetic member

Minor equipment details:

1. Consolidation Test Apparatus
2. Direct Shear Test Apparatus
3. Permeability Test Apparatus (Both Constant and Falling Head)
4. Tensiometers
5. Infrared Moisture Meter



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Major software list with description:

1. Plaxis (that is used to understand and analyze the deformation and stability characteristics of structures constructed with Earthen materials)

Types of projects / research carried out with description:

Every year, the final year students of under graduation program eagerly participate and acts as volunteers in various activities associated with this research center. This dynamic center not only offers the students to participate but also enrich their knowledge beyond the traditional classroom learning and the experiments confined as per there curriculum. Further their active involvement helps in cultivating critical thinking skills.

Additionally, the research center has provided various publications to researchers working in this field, as shown in the table below. And it is expected that in upcoming days the number of publications increases exponentially.

Year of Publication	Publication Details
2023	3-Dimensional Numerical Evaluation of Geosynthetic Encased Stone Columns in Unsaturated Soils , E3S Web of Conferences 382, 12001
2023	Bearing capacity of annulus stone column double-encapsulated with geotextiles , International Journal of Geomechanics, 23 (2)
2022	Bearing Capacity of Asphalt-Coated Jute Textile Reinforced Sand , Geotechnical and Geological Engineering, 40(7), 3457-3475
2021	Performance of Polypropylene Textile encased stone columns, Geotextiles and Geomembranes, 49 (1), 222-242
2020	Experimental investigations on footings supported on soft clay beds reinforced with strength enhanced Jute Geogrids , Pan American Conference in Geosynthetics



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Research & Education Center (Advanced Soil Engineering)

	
Faculty I/c: Mr. B. Sai Laxman Designation: Assistant Professor	Lab Technician: Mr. P. Harish Designation: Instructor

Total Cost of the Lab: Rupees Twenty Lakhs Thirty Thousand One Hundred Twenty-Six only. (Rs. 20,30,126.00)

Laboratory Photos

