



**DEPARTMENT OF CIVIL ENGINEERING**

**GEO-TECHNICAL ENGINEERING**

**Program Education Objectives (PEOs)**

- 1) To apply knowledge of geotechnical engineering to produce engineers to integrate and build concepts to improve professional leadership, teamwork, life-long learning, and career advancement.
- 2) To design and conduct experiments, to analyze and interpret data related to the geotechnical engineering, as well as to formulate systems within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- 3) To accentuate the understanding of the basic principles and exposes the student to the latest developments, with a strong research foundation so as to provide engineering solutions in a global, economic, environmental, and societal context.

**Program Outcomes (POs)**

The program demonstrates that:

- a. Engineering Knowledge: The graduates are capable of applying the core and multidisciplinary knowledge for understanding the problems in Geotechnical engineering and related fields.
- b. Problem Analysis: The graduates will possess critical thinking skills, problem solving abilities, familiarity with the computational procedures essential to the field, knowledge of various problems adhered to soil behavior.
- c. Design & Development of Solutions: The graduates are able to formulate, analyse, design and execute the construction of various types of foundations with appropriate consideration for public health and safety and cultural, societal and environmental conditions.
- d. Conduct investigations of complex problems: The graduates can use research based knowledge and research methods to conduct experiments, to analyze and interpret experimental data.
- e. Modern Tool Usage: The students get hands on training on various Geotechnical software's and are able to model critical field problems using software's.
- f. The Engineer and Society: The students through the acquired appropriate knowledge can assess societal, health, safety, legal and cultural issues and will be able to take responsibilities relevant to Geotechnical Engineering practice.



**VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING & TECHNOLOGY**  
(An UGC Autonomous Institute, Accredited by NBA, NAAC with 'A' Grade)

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- g. Environment and Sustainability: As the students possess substantial knowledge in multi-disciplinary areas, one is able to plan the various projects well, keeping in view its environmental effects on other related fields.
- h. Ethics: Apply ethical principles and commitment to professional responsibilities.
- i. Individual and Team work: Capable of working efficiently as individual, as member or leader in driver set teams and in multi- disciplinary settings.
- j. Communication: The students achieve excellence in expressing his/her ideas, writing technical reports with great communication skills and managerial skills.
- k. Project Management and Finance: Graduates will be able to understand the critical issues in professional practice such as analyzing the critical soil conditions, procurement of works and the execution of a project and the financial managerial capabilities.
- l. Life-Long learning: Students will maintain an awareness of contemporary issues and recognise the need for and engage in life-long learning to update with or develop technologies to meet the growing and changing needs of society.

**Program Specific Outcomes (PSOs) :**

**Students will be able to:**

1. Identify, Investigate and Explore soil strata for construction of Buildings, Bridges, Dams, Retaining Walls, Pavements and Underground structures.
2. Analyze and Address the problems of foundations, slopes and retaining structures for different failure criteria, deformations and settlement behavior under static and dynamic loading pattern.
3. Design the substructures appropriately to overcome problematic soil behaviors such as collapsible, swelling and to support enormous structural loads.