

|| Jai Sri Gurudev||  
**Sri Adichunchanagiri Shikshana Trust (R)**  
**ADICHUNCHANAGIRI UNIVERSITY**  
**BGS Institute of Technology**

**B. E. CIVIL ENGINEERING**

**Choice Based Credit System (CBCS) and Outcome Based Education (OBE)**

<b>18CVL66</b>	<b>Course Code</b>	<b>GEOTECHNICAL ENGINEERING LAB</b>	<b>Course Title</b>	<b>VI</b>	<b>Semester</b>
<b>2</b>	<b>Credits</b>	<b>1 – 0 – 2 – 3</b>	<b>L – T – P – TL*</b>	<b>42 Hours</b>	<b>Teaching Period</b>
<b>100 Marks</b>	<b>Total</b>	<b>60 Marks</b>	<b>SEE*</b>	<b>40 Marks</b>	<b>CIE*</b>
*NOTE: L – Lecture; T – Tutorial; P – Practical; TL – Total; CIE – Continuous Internal Evaluation; SEE – Semester End Examination					

<p><b>Course Learning Objectives:</b> This course will enable students to;</p> <ol style="list-style-type: none"> <li>1. To carry out laboratory tests and to identify soil as per IS codal procedures.</li> <li>2. To understand the determination of physical, index and Engineering properties of soil.</li> <li>3. To perform the tests to determine shear strength characteristics of soils.</li> </ol>	<b>Number of Lecture Hours/Week</b>
<p><b>Experiments:</b></p> <ol style="list-style-type: none"> <li>1. Determination of specific gravity of soil.</li> <li>2. Determination of water content of soil by oven drying method.</li> <li>3. Grain size analysis.</li> <li>4. Field density determination by core cutter method.</li> <li>5. Field density determination by sand replacement method.</li> <li>6. Determination of liquid limit of soil.</li> <li>7. Determination of plastic limit of soil.</li> <li>8. Determination of shrinkage limit of soil.</li> <li>9. Standard proctor compaction test.</li> <li>10. Modified proctor compaction test.</li> <li>11. Determination of permeability of soil by constant head method.</li> <li>12. Determination of permeability of soil by variable head method.</li> <li>13. Determination of shear strength of soil by direct shear method.</li> <li>14. Determination of shear strength of soil by triaxial shear method.</li> <li>15. Determination of shear strength of soil by unconfined compression test.</li> </ol>	<b>03 = (1 Hour Instruction + 2 Hours Laboratory)</b>

**Course outcomes:** After a successful completion of the course, the student will be able to:

1. Understand the visual soil classification and able to determine the physical and index properties of soil.
2. Able to identify and classify soil based on standard geotechnical engineering practice.
3. Able to perform the in-situ density and compaction test for field quality control.
4. Able to perform and analyze laboratory co-efficient of permeability test.
5. Able to perform the shear strength test to assess strength and deformation characteristics.

**Question paper pattern:**

- All experiments are to be included in the examination.
- Candidate to perform experiment assigned to him.
- Marks are to be allotted as per the split up marks shown on the cover page of answer script.

**Text Books:**

1. Punmia B C, "Soil Mechanics and Foundations", Laxmi Publications (P) Ltd.
2. Murthy V N S, "Principles of Soil Mechanics and Foundation Engineering", UBS Publishers and Distributors, New Delhi.
3. Gopal Ranjan and Rao A S R, "Basic and Applied Soil Mechanics", New Age International (P) Ltd, New Delhi.