|  |  |  |
| --- | --- | --- |
|  | **National Institute of Technology Meghalaya**An Institute of National Importance | **CURRICULUM** |
| Programme | **Master of Technology (Structural Engineering)** | Year of Regulation | **2018** |
| Department | **Civil Engineering** | Semester | **II** |
| Course Code | Course Name | Pre-requisite | Credit Structure | Marks Distribution |
| L | T | P | C | INT | MID | END | Total |
| **CE 524** | **Mechanics of Soil Lab** | **NIL** | **0** | **0** | **2** | **1** |  | **100** | **100** |
| Course Objectives |  To familiarize the students with the analysis of the various test methodologies for evaluating the soil shear strength both under laboratory conditions. | CourseOutcomes | CO1 | Identify the shear strength parameters with laboratory investigations |
| CO2 | Evaluate the settlement criteria of different types of soil with laboratory investigations |
|  To familiarize the students with the analysis of the various test methodologies for evaluating the soil shear strength both under field conditions |
| CO3 | Determination of in-situ shear strength |
| SYLLABUS |
| No. | Content | Hours | COs |
| I | To determine the shearing strength of the soil using the direct shear apparatus. | 1 | CO1 |
| II | To determine shear parameters of cohesive soil | 1 | CO2 |
| III | To find the shear of the soil by Un drained Tri-axial Test | 1 |  |
| IV | To determine the settlements due to primary consolidation of soil by conducting one dimensional test | 1 | CO3 |
| V | To determine the California bearing ratio by conducting a load penetration test in the laboratory. | 2 | CO1 |
| VI | To determine the dry density (field density) of the soil by cone cutter and sand replacement method. | 2 | CO2 |
| VII | To determine the relative density of given course grained soil. | 2 |  |
| VIII | Determination of shear strength in-situ [Vane Shear Test (VST)], Laboratory [Vane Shear Test (VST)]. | 2 | CO3 |
| Total Hours | 12 |  |
| **Essential Readings** |
| 1. Ranjan, G and Rao, A.S.R., “Basic and Applied Soil Mechanics”, New Age International.
 |
| 1. Terzaghi K., Peck R. B. and Mesri G., “Soil Mechanics in Engineering Practice”, John Wiley & Sons.
 |
| 1. KanirajS.R.,”Design Aids in Soil Mechanics & Foundation Engineering”, Tata McGraw Hill.
 |
| **Supplementary Readings** |
| 1. Lambe T.W and Whitman R.V., “Soil Mechanics”, John Wiley & Sons.
 |
| 1. Punmia B.C., “Soil Mechanic and Foundation Engineering”, Laxmi Publication Pvt. Ltd.
 |
| 1. Braja M. Das., “Fundamental of Foundation Engineering”, Thomson Asia Pvt. Ltd, Singapore.
 |