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| Image result for nit meghalaya logo | **National Institute of Technology Meghalaya**An Institute of National Importance | **CURRICULUM** |
| Programme | **Bachelor of Technology in Civil Engineering** | Year of Regulation | **2020-2021** |
| Department | **Civil Engineering** | Semester | **V** |
| CourseCode | Course Name | **Pre requisite** | Credit Structure | Marks Distribution |
| L | T | P | C | Continuous Assessment | Total |
| **CE 351** | **Geotechnical Engineering Lab- I** | **Nil** | **0** | **1** | **2** | **2** | **100** | **100** |
| CourseObjectives | 1. To introduce basic properties of soil
 | Course Outcomes | CO1 | Able to conduct simple tests to identify basic soil properties |
| 1. To introduce Soil classification
 | CO2 | Able to classify various soil types |
| 1. To introduce index and engineering properties of soil
 | CO3 | Able to conduct tests to compute the index properties (such as Atterberg limits etc.)  |
|  | CO4 | Able to conduct compaction test of soil |
|  | CO5 | Able to conduct tests to compute engineering properties (such as permeability, shear strength) of soil for geotechnical site investigation. |
| No. | COs | Mapping with Program Outcomes (POs) | Mapping with PSOs |
| PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| 1 | CO1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 |
| 2 | CO2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **3** | 0 |
| 3 | CO3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **3** | 0 |
| 4 | CO4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **3** | 0 |
| 5 | CO5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SYLLABUS |
| No. | Content | Hours | COs |
| I | To determine the specific gravity of soil | **02** | **CO1** |
| II | To determine the water content of soil sample | **02** | **CO1** |
| III | Grain size analysis of soils | **04** | **CO2** |
| IV | To estimate the consistency limit of fine-grained soils | **06** | **CO3** |
| V | To determine the optimum moisture content of soil. | **04** | **CO4** |
| VI | To estimate shear strength of soils by vane shear test. | **04** | **CO5** |
| VII | To estimate the engineering properties of the soils by density test, CBR test, permeability test | **02** | **CO5** |
| Total Hours | **24** |  |
| **Essential Readings** |
| **1.** Terzaghi K., Peck R. B. and Mesri G., “Soil Mechanics in Engineering Practice”, John Wiley & Sons. |
| **2.** Head K.H. (1982). Manual of Soil Laboratory Testing, Vol. 1, 2, 3, Whittles Publishing, Scotland, UK.  |
| **3.** IS 2720 (Various parts). Methods of Test for Soils, Bureau of Indian Standards. |
| **Supplementary Readings** |
| 1. Bowles J.E. (1979). Physical and Geotechnical Properties of Soils, McGraw Hill Publishers. |
| 2. Lambe (1951). Soil Testing in Engineering, Wiley & Sons. |
| 3. Punmia B.C., “Soil Mechanic and Foundation Engineering”, Laxmi Publication Pvt. Ltd. |
| 4. Mandal J.N. and Divshikar D.G. (1994). Soil Testing in Civil Engineering, Oxford & IBH Publishing Company Pvt. Ltd., New Delhi. |