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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** | | | | | |
| Course  Code | | 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** | |
| Course  Objectives | | 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. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |