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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 | | | | | | | | | | **2020-21** | | | | | |
| Department | | | | **Department of Civil Engineering** | | | | | | | | | | | | Semester | | | | | | | | | | **VI** | | | | | |
| Course  Code | | Course Name | | | | | | **Pre requisite** | | | | | Credit Structure | | | | | | | | Marks Distribution | | | | | | | | | | |
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| **CE 354** | | **Geotechnical Engineering-II Lab** | | | | | | **NIL** | | | | | **0** | | **1** | | | **2** | **2** | |  | | | | | | **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. | | | | | | | | | Course Outcomes | | | | CO1 | | | Identify the shear strength parameters of soil with analytical solutions. | | | | | | | | | | | | | |
| To familiarize the students with the analysis of the various test methodologies for evaluating the soil shear strength both under field conditions. | | | | | | | | | CO2 | | | Identify the shear strength parameters with laboratory investigations | | | | | | | | | | | | | |
|  | | | | | | | | | CO3 | | | Evaluate the settlement criteria of different types of soil with laboratory investigations | | | | | | | | | | | | | |
|  | | | | | | | | | CO4 | | | Determination of in-situ shear strength | | | | | | | | | | | | | |
| 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 | | **0** | | **3** | **3** | **2** | | **3** | **2** | **0** | **0** | | **3** | | | **0** | | | **3** | | **3** | | | **0** | | | **3** | | | **2** |
| 2 | CO2 | | **0** | | **0** | **0** | **2** | | **0** | **0** | **0** | **0** | | **3** | | | **0** | | | **3** | | **3** | | | **0** | | | **3** | | | **2** |
| 3 | CO3 | | **0** | | **3** | **3** | **2** | | **3** | **0** | **0** | **0** | | **3** | | | **0** | | | **3** | | **3** | | | **0** | | | **3** | | | **2** |
| 4 | CO4 | | **0** | | **3** | **3** | **2** | | **3** | **0** | **0** | **0** | | **3** | | | **0** | | | **3** | | **3** | | | **0** | | | **3** | | | **2** |
| SYLLABUS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | Content | | | | | | | | | | | | | | | | | | | | | | Hours | | | | | | COs | | |
| I | Identify the shear strength parameters with analytical solutions. | | | | | | | | | | | | | | | | | | | | | | **4** | | | | | | **CO1** | | |
| II | To determine the shearing strength of the soil using the direct shear apparatus. | | | | | | | | | | | | | | | | | | | | | | **4** | | | | | | **CO1, CO2** | | |
| III | To determine shear parameters of cohesive soil | | | | | | | | | | | | | | | | | | | | | | **4** | | | | | | **CO1, CO2** | | |
| IV | To find the shear of the soil by UndrainedTriaxial Test. | | | | | | | | | | | | | | | | | | | | | | **4** | | | | | | **CO1, CO2** | | |
| V | To determine the settlements due to primary consolidation of soil by conducting one dimensional test. | | | | | | | | | | | | | | | | | | | | | | **4** | | | | | | **CO4** | | |
| VI | To determine the California bearing ratio by conducting a load penetration test in the laboratory. | | | | | | | | | | | | | | | | | | | | | | **4** | | | | | | **CO1, CO2** | | |
| VII | Determination of shear strength in-situ [Standard Penetration test (SPT), Cone Penetration Test (CPT), Dynamic Cone Penetration Test (DCPT), Vane Shear Test (VST), Dilatometer Test (DMT),Pressure meter Test (PMT) etc] | | | | | | | | | | | | | | | | | | | | | | **12** | | | | | | **CO4** | | |
| Total Hours | | | | | | | | | | | | | | | | | | | | | | | **36** | | | | | |  | | |
| **Essential Readings** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1. Terzaghi K., Peck R. B. and Mesri G., “Soil Mechanics in Engineering Practice”, John Wiley & Sons. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Supplementary Readings** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. KanirajS.R.,”Design Aids in Soil Mechanics & Foundation Engineering”, Tata McGraw Hill. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Bardet J., “Experimental soil mechanics”, Upper Saddle River, Prentice Hall, USA. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Liu, C. and Evett, J. B. , “Soil properties: testing, measurement and evaluation”, Upper Saddle River, Prentice Hall, USA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |