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|  | | | | | **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. | | | | | | | | | | | | | | | | | | | |