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|  | **National Institute of Technology Meghalaya**An Institute of National Importance | **CURRICULUM** |
| Programme | **Bachelor of Technology in Civil Engineering** | Year of Regulation | **2019-20** |
| Department | **Civil Engineering** | Semester | **III** |
| Course Code |  Course Name | Pre-Requisite | Credit Structure | Marks Distribution |
| **CE 253** | **Surveying lab** | **NIL** | L | T | P | C | Continuous Assessment | Total |
| **0** | **1** | **2** | **2** | **Experiment** | **10** | **100** |
| Course Objectives | To develop the student’s knowledge to understand the basic skills of surveying work including distance and angle measurement | Course Outcomes | CO1 | Able to use conventional surveying tools such as chain/tape, compass, plane table, level in the field of civil engineering applications such as structural plotting and highway profiling  |
| To provide knowledge on types of survey methodology and equipment suitable for a particular engineering projects. | CO2 | Able to finalise and select a particular type of survey and equipment suitable for a particular engineering. |
| To introduce different type of surveying equipment  | CO3 | Apply the procedures involved in field work and to work as a surveying team  |
| To provide knowledge on how to prepare a surveying map using collected surveying data. | CO4 | Take accurate measurements, field booking, plotting and adjustment of errors can be understood.  |
| To make student’s understand the basic concept of remote sensing & GIS | CO4 | Able to understand the basic concept of remote sensing & GIS |
|  | CO6 |  |
| 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** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** | **0** |
| 2 | CO2 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** | **0** |
| 3 | CO3 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** | **3** |
| 4 | CO4 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** | **3** |
| 5 | CO5 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** | **0** |
| 6 | CO6 | **3** | **3** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **3** | **0** |
| SYLLABUS |
| No. | Content | Hours | COs |
| 1 |  To perform chain surveying of a given area | 02 | CO1 CO2 CO3 CO4 CO5 |
| 2 |  Compass traversing and error adjustment of a given area | 02 |
| 3 |  Theodolite traversing and error adjustment of a given area | 02 |
| 4 |  To conduct surveying using profile levelling and cross sectioning of a given route | 02 |
| 5 |  To determine the difference in elevation of two given points. | 02 |
| 6 |  To prepare the contour map of an area | 02 |
| 7 |  To conduct surveying using plane tabling by radiation and intersection method of a given area | 02 |
| 8 |  To set out a simple circular curve by different methods. | 02 |
| 9 |  To use total station for finding slope, horizontal distance & vertical distances and traversing of a given area | 02 |
| 10 | Collecting topographic data using hand held GPS | 02 |
|  11 | Viva-voce and exam | 04 |
| **Total hours** | **24** |  |
| **Essential Readings** |
| 1. B.C. Punmia, “Surveying Vol.I and II, Standard Publishers”, Second edition, 1994.
 |
| 1. S.K. Duggal, “Surveying Vol. I and II, Tata McGraw Hill”, Fourth edition, 2004.
 |
| 1. W. Schofield and M. Breach, “Engineering Surveying”, 6th edition, CRC Press, 2007.
 |
| **Supplementary Readings** |
| 1. N.N. Basak , “Surveying & Levelling, McGraw Hill, second edition, 2014
 |
| 1. K.R. Arora, “Surveying Vol. I and II” Standard Book House, 1996
 |
| 1. G. Satheesh, “The Global Positioning System and Surveying using GPS”, Tata McGraw, 2005.
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