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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. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |