

SURVEYING AND GEOMATICS LABORATORY

III Semester: CE								
Course Code	Category	Hours/Week			Credits	Maximum Marks		
ACEC05	Core	L	T	P	C	CIA	SEE	Total
		0	0	3	1.5	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes:36			Total Classes:36			
Prerequisite: No Prerequisites required								
I. COURSEOVERVIEW:								
<p>The Surveying Laboratory is equipped with the instruments and tools that students use throughout the surveying course. Students learn techniques for gathering field data with both traditional and modern instruments. A set of instruments are used such as surveying chains, tapes, auto level, dumpy levels, theodolite, ranging rods, tripods, pegs, plane tables and other common surveying tools and ancillary equipment's.</p>								
II. COURSEOBJECTIVES								
The Students will try to learn:								
<ol style="list-style-type: none"> 1. The practical knowledge on calculation of an area, volume of an irregular and regular land surface using chains and tapes. 2. The different types of instruments in surveying. Perform levelling and contouring of ground surfaces. 3. Mathematics in surveying field to calculate areas and volumes for different projects. 4. Survey data and design the civil engineering projects. 								
III. COURSESYLLABUS								
Week- 1:INTRODUCTION TO SURVEYING LABORATORY -I								
Introduction to surveying laboratory. Do's and Don'ts in surveying lab								
Week- 2: SURVEY OF AN AREA BY CHAIN SURVEY (CLOSED TRAVERSE) AND PLOTTING.								
Measurement of an area by chain survey								
Week-3: CHAINING ACROSS OBSTACLES								
Chaining across obstacles								
Week-4: DETERMINATION OF DISTANCE BETWEEN TWO INACCESSIBLE POINTS WITH COMPASS								
Calculation of distance between two points with compass survey.								
Week-5: SURVEYING OF AGIVENAREA BYPRISMATICCOMPASS(CLOSEDTRAVERSE) AND PLOTTING AFTER ADJUSTMENT								
Surveying of a given area by prismatic compass								
Week-6: CORRECTION FOR LOCAL ATTRACTION BY PRISMATIC COMPASS								
Corrections for local attraction by prismatic compass								
Week-7: RADIATION METHOD, INTERSECTION METHODS BY PLANE TABLE SURVEY								
Radiation method and intersection methods by plane table survey.								
Week-8: TWO POINT PROBLEMS IN PLANE TABLE SURVEY								
Two point problems in plane table survey.								
Week-9: THREE POINT PROBLEMS IN PLANE TABLE SURVEY								
Three-point problems in plane table survey.								

Week-10: TRAVERSING BY PLANE TABLE SURVEY

Traversing by plane table survey.

Week-11: FLY LEVELING (DIFFERENTIAL LEVELING)

Fly leveling

Week-12: AN EXERCISE OF LONGITUDINAL SECTION AND CROSS SECTION AND PLOTTING

An exercise of longitudinal section and cross section and plotting.

Week-13: TWO EXERCISES ON CONTOURING

Exercises on contouring.

IV. REFERENCE BOOKS

1. H. S. Moondra, Rajiv Gupta, "Laboratory Manual for Civil Engineering", CBS Publishers Pvt .Ltd., New Delhi, 2nd Edition, 2013.
2. James M. Anderson, Edward M. Mikhail, "Surveying: Theory and Practice", Tata McGraw Hill Education, 2012.
3. S. S. Bhavikatti, "Surveying Theory and Practice", IK Books, New Delhi, 2010.