SURVEYING LABORATORY

Course Code:	18CVL38	**Credits:**	1.5
Course Type:	L	**CIE Marks:**	25
Hours/week: L – T – P	0 – 0 – 3	**SEE Marks:**	25
Total Hours:	36 (3 hours per week)	**SEE Duration:**	3 Hours

Course Learning Objectives

1. Demonstrate the Linear and Angular surveying instruments used in field work.
2. To measure the Reduce level by rise and fall method and Height of instrument.
3. Demonstrate the Theodolite and Total station used in field work.
4. Demonstrate the advance instrument used in surveying.

Lists of Experiments

1. Linear Measurements:

a) To measure distance between two points using direct ranging.
b) To set out perpendiculars at various points on given line using cross staff, optical square, Chain and tape

2. Compass surveying:

a) To determine the distance between two inaccessible points using chain/tape & compass

3. Leveling:

a) To determine difference in elevation between two points using Fly leveling, conduct fly back leveling and Booking of levels using HI and Rise and Fall method.
b) To conduct profile leveling for water supply /sewage line and to draw the longitudinal section and to determine the depth of cut and depth of filling for a given formation level

4. Theodolite survey:

a) Measurement of horizontal and vertical angles
b) To determine the elevation of an object using single plane method (Base is accessible)

5. Setting out of curve

a) To set out Compound curve using Rankine's deflection angles method

6. Setting out:

a) To set out the center line of a simple rectangular rooms (Framed Structure) using double baseline method.

Reference Books

1. Punmia B.C–**"Surveying Vol–1",** Laxmi Publications, New Delhi, Sixteenth edition, 2005 and above.
2. Subramanian R–**"Surveying and Levelling",** Oxford University Press, Third edition 2007 and above.
3. Venkataramiah C- "**Text Book of Surveying",** Universities Press, Second edition 2011 and above.
4. Dr.R.P.Rethaliya**-"Surveying",** Atul Prakashan, Gandhi road, Ahmadabad, ISBN No : 978-93-81-518-35-9

5. Kanetkar T.P and Kulkarni S.V - **"Surveying and Levelling Part- I",** Vidyarthi Ghrih Prakashan Pune, Twenty fourth edition 2010 and above.

Course Outcome (COs)

At the end of the course, the student will be able to	Bloom's Level
1. **Understand** the applications of surveying instruments in civil engineering projects	**L2**
2. **Identify** the various instruments used for field work	**L3**
3. **Understand** the function of Compass, Auto level, Theodolite and Total station in surveying projects	**L2**
4. Prepare **plans** or maps to represent the area on a horizontal plane	**L3**
5. **Identify** and **understand** the use of advance surveying instruments used for surveying works	**L3, L2**

Program Outcome of this course (POs)	**PO No.**
1. Graduates shall be able to understand and apply the basic mathematical and scientific concepts that underlie the field of Civil Engineering.	**1**
2. Graduates shall be able to design and conduct experiments and interpret the results as per the current research	**4**
3. Graduates shall possess critical thinking abilities, problem solving skills and familiarity with the necessary computational tools and procedures	**5**

Course delivery methods

1. Lecture and Board
2. Field Experiments

Assessment methods

1. Internal Assessment Tests
2. Semester End Examination (SEE)

Scheme of Continuous Internal Evaluation (CIE): 25Marks

CIE	Conduct of lab	10
	Journal writing	10
	Lab Test	05

Scheme of Semester End Examination (SEE): 25Marks

SEE for lab is conducted for 50 marks and scaled down to 25marks

SEE	Initial Write -up	2*10=20
	Conduct of Experiments	2*10=20
	Viva-Voce	10

Practical examination (SEE) of 3 hours duration will be conducted for 50 marks. It will be reduced to 25 marks for the calculation of SGPA and CGPA.