



## **C.U.SHAH UNIVERSITY – Wadhwan City**

**FACULTY OF:** -Technology and Engineering (Diploma Engineering)

**DEPARTMENT OF:** - Civil Engineering

**SEMESTER:** - III      **CODE:** -2TE03SUR1

**NAME –** Surveying

### **Teaching & Evaluation Scheme:-**

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	To		Theory				Practical (Marks)		Total	
							Sessional Exam		University Exam		Internal			University
							Marks	Hours	Marks	Hours	Pr	TW		Pr
2TE03SUR1	Surveying	04	00	02	06	05	30	1.5	70	03	30	20	---	150

**Objectives:** To equip the students with comprehensive knowledge of surveying as a tool for initiating execution.

**Prerequisites:** Thorough knowledge of surveying and instruments.

### **Course Outlines:-**

Sr. No.	Course Contents	Teaching Hours
1	<b>Introduction to Survey:</b> Definition , Classification , General principles of surveying, Different types of scales, various types of venires, micrometers on surveying instruments, Chain surveying ,conventional symbol, instruments required for linear measurement, minor instruments for setting out right angle, Obstacles in chaining and ranging.	09
2	<b>Compass Traversing:</b> Introduction and purpose, methods of traversing, meridians, bearings, Designation of bearing, Magnetic declination, computation of included angles, Types of compass- Prismatic and Surveyor's compass, Local attraction , closing error and its elimination by Bowditch's rule, Sources of error in compass, precautions of compass survey.	10
3	<b>Plane table surveying:</b> Definitions, uses and advantages, temporary adjustments, Different methods of plane table surveying, Two point problem Errors in plane table survey, use of telescopic alidade	09
4	<b>Levelling and Contouring:</b> Definitions, Different types of levels- Dumpy level, Tilting level, Auto level ,Self reading and target leveling staff, Temporary and permanent adjustments of dumpy level, Recording and reduction of observations. Methods of leveling, Curvature and refraction correction. Contour – definitions, contour interval, equivalent, uses and characteristics of contour lines, direct and indirect methods of contouring.	12

5	<b>Theodolite Traversing:</b> Theodolite- Types of Theodolite, Components of transit Theodolite and their functions, Temporary and permanent adjustments of transit theodolite, various uses of transit theodolite , measurement of horizontal and vertical angle, prolongation of a straight line, ranging a line, laying off an angle, measurement of deflection angle. Theodolite traverse – Traverse computation by Gale's traverse table, consecutive co-ordinates, closing error, balancing the traverse by Bowditch's rule and transit method, omitted measurement, independent co-ordinates. Trigonometrically leveling – Measurements of heights and distance.	12
6	<b>Computation of area and volume:</b> Computations of area – Area of a irregular figure by Trapezoidal rule, average ordinate rule, Simpson's 1/3 rule, various co ordinate methods, Planimeter: types of planimeter including digital planimeter, area of zero circle. Computations of volume- by trapezoidal and prismoidal formula, volume from spot level	08

#### **Learning Outcomes:**

- Knowledge of all building materials and their application.
- Ability to choose the most suitable material for a work.

#### **Books Recommended:-**

- Surveying and Leveling by **N.N.Basak**, Tata McGraw Hill 25 th Edition 2008.
- Surveying and Leveling Vol. I, II by **B. C. Punmia**, Laxmi Publication, 16th edition, 2005.