INSTITUTE	**FACULTY OF TECHNOLOGY**
PROGRAM	**BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)**
SEMESTER	**3**
COURSE TITLE	**SURVEYING**
COURSE CODE	**01CI1303**
COURSE CREDITS	**3**

Objective:

1 To know different field method of surveying
2 To apply concept of area and volume to field applications like quantity of cutting & filling or capacity of reservoir.
3 To know different field method of surveying.
4 To calculate internal angles of the traverse.
5 To calculate latitude and departure of traverse lines.
6 To study types of curves and their field setting out.
7 To understand method to calculate area and volume.
8 To apply concept of area and volume to field applications like quantity of cutting & filling or capacity of reservoir

Course Outcomes: After completion of this course, student will be able to:

1 Recognize basic principles of various methods of surveying.
2 Compute the included angles, latitude and departure of the traverse lines on the field.
3 Demonstrate different types of curves on the field during survey work
4 Analyze, calculate and measure the area and volumes of the different capacities and topographical situations

Pre-requisite of course:...

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Plane Table Survey** Introduction, principle, instruments, setting up the plane table, methods of plane tabling, advantages of plane table survey	4

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Contents : Unit	Topics	Contact Hours
2	**Theodolite Traversing** Introduction, Fundamental definitions, Theodolite and its functioning, Measurement of vertical and horizontal angles, Methods of traversing, closing error, Calculation of latitudes and departure, checks and balancing of traverse, Gale's traverse table, Omitted measurements.	8
3	**Trigonometric leveling** Method of indirect leveling, Methods of leveling on steep ground.	3
4	**Tacheometry** Definitions, Principle of tacheometry, Self-reducing tacheometers and methods	3
5	**Curves** Introduction, Basics and geometry, Issues in curve location, Elements and setting out of circular and transit curves, Elements of vertical curves.	4
6	**Field Area & Volumes** Calculation of areas having regular & irregular boundaries, Trapezoidal formula, Simpson's rule, Digital planimeter, computation of volume for Earthwork volume calculation for cutting & filling, Volume from cross sections Calculation of reservoir capacity.	6
Total Hours		**28**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Experiment-1** Horizontal angle measurement by the theodolite	6
2	**Experiment-2** Vertical angle measurement by the theodolite	4
3	**Experiment-3** Determination of elevation of a point using trigonometric levelling	6
4	**Experiment-4** Setting out the simple circular curve using various methods	4
5	**Experiment-5** Setting out the foundation for simple building on ground	4
6	**Experiment-6** Determination of angular measurement and Coordinates using Total Station	4
Total Hours		**28**

Textbook :

1 Surveying Vol.I, II and III, Dr. B.C. Punamia, Laxmi Publication, 2010

2 Surveying Vol. I and II, S. K. Duggal, Tata McGraw-Hill Education, 2013

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References:

1 Surveying Vol. I, II and III, Surveying Vol. I, II and III, Dr. K.R. Arora, Standard Book House, New Delhi, 2010

2 Surveying and Levelling, Surveying and Levelling, N.N. Basak, Tata McGraw-Hill Education, 2016

3 Surveying and Levelling, Surveying and Levelling, R. Agor, , Khanna Publishers, 2012

4 Surveying and Leveling, Surveying and Leveling, Subramanian, R, Oxford University Press, 2010

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
10.00	20.00	40.00	15.00	10.00	5.00

Instructional Method:

1 At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.

2 Lectures will be taken in class room with the use of multi-media presentations, black board – mix of both.

3 Attendance is compulsory in lectures and laboratory which carries a 5% component of the overall evaluation

4 Minimum two internal exams will be conducted and average of two will be considered as a part of 15% overall evaluation

5 Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval. It carries a weightage of 5%.

6 Surprise tests/Quizzes will be conducted which carries 5% component of the overall evaluation.

Supplementary Resources:

1 https://nptel.ac.in/courses/105/107/105107122

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