

Course Code	Course Name	L-T-P-Credits	Year of Introduction
CE207	SURVEYING	3-0-0-3	2016

**Prerequisite :** Nil

**Course objectives:**

- To introduce the principle of surveying
- To impart awareness on the various fields of surveying and types of instruments
- To understand the various methods of surveying and computations

**Syllabus:** Basics of Surveying, Levelling and Contouring, Area and Volume Computation, Theodolite Survey, Mass Diagram, Triangulation, Theory of Errors, Electronic Distance Measurement, Total Station Survey

**Course Outcomes:** After successful completion of the course, the students will possess knowledge on the basics of surveying and different methods of surveying

**Text Books :**

1. Prof. T.P.Kenetkar & Prof.S.V.Kulkarni - Surveying and Levelling , Pune Vidyarthi Griha Prakashan,2004
2. N N Basak, Surveying and Levelling, Mc GrawHill Education

**References :**

1. R.Agor - A Text book of Surveying and Levelling, Khanna Publishers, 2005
2. C. Venkatramaiah, Textbook of Surveying, Universities Press (India) Private Limited 2011
3. James M Andersen, Edward M Mikhail, Surveying Theory and Practice, McGraw Hill Education
4. Dr. B.C.Punmia , Ashok Kumar Jain & Arun Kumar Jain - Surveying , Laxmi publications (P)Ltd , 2005
5. S.K.Duggal - Surveying Vol. I, Tata Mc Graw Hill Ltd ,Reprint 2015.

COURSE PLAN			
Module	Contents	Hours	Sem.Exam Marks %
I	<b>Introduction to Surveying-</b> Principles, Linear, angular and graphical methods, Survey stations, Survey lines- ranging, Bearing of survey lines, Local attraction, Declination, Dip, Latitude and Departure, Methods of orientation, Principle of resection	7	15
II	<b>Levelling:</b> Principles of levelling- Dumpy level-booking and reducing levels, Methods- simple, differential, reciprocal leveling, profile levelling and cross sectioning. Digital and Auto Level, Errors in levelling <b>Contouring:</b> Characteristics, methods, uses.	7	15
FIRST INTERNAL EXAMINATION			
III	<b>Area and Volume:</b> Various methods of computation. <b>Theodolite survey:</b> Instruments, Measurement of horizontal and vertical angle. <b>Mass diagram:</b> Construction, Characteristics and Uses.	6	15
IV	<b>Triangulation:</b> Triangulation figures, Strength of figure, Triangulation stations, Inter visibility of stations, Towers and signals – Satellite Stations and reduction to centre.	8	15
SECOND INTERNAL EXAMINATION			
V	<b>Theory of Errors</b> – Types, theory of least squares, Weighting of observations, Most probable value, Application of weighting, Computation of indirectly observed quantities - method of normal equations.	8	20
VI	<b>Electromagnetic distance measurement (EDM)</b> – Principle of EDM, Modulation, Types of EDM instruments, Distomat <b>Total Station</b> – Parts of a Total Station – Accessories – Advantages and Applications, Introduction to Astronomical terms, Field Procedure for total station survey, Errors in Total Station Survey.	6	20
END SEMESTER EXAMINATION			

**QUESTION PAPER PATTERN (End semester exam) :**

Maximum Marks :100

Exam Duration: 3 Hrs

The question paper shall have three parts.

Part A -Module I & II : 2 questions out of 3 questions carrying 15 marks each

Part B - Module III & IV: 2 questions out of 3 questions carrying 15 marks each

Part C - Module V & VI : 2 questions out of 3 questions carrying 20 marks each

**Note :** 1.Each part should uniformly cover the two modules in that part.

2. Each question can have a maximum of 4 subdivisions (a,b,c,d), if needed

