

Surveying – I
S.E. Sem. III [CIVIL/CONE]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	–	–
Oral Exam	–	–
Term Work	–	25

SYLLABUS

1. Introduction

Various types of surveying – based on methods and instruments, classifications, uses and necessity of geodetic surveying, photographic, astronomy and hydrographic surveying.

Plain and diagonal scale, various types of verniers, micrometers on surveying instruments, principles of surveying.

Different types of ranging, tapes, chains, steel band

Linear measurements, approximate, direct, optical and electronic methods.

Chain surveying, minor instruments for setting out right angle.

2. Compass Survey

Bearings – different types, compass – prismatic, surveyor, whole circle and reduced bearings, declination, local attraction, plotting of compass survey by different methods.

3. Levelling and contouring :

Definitions, technical terms, different types of levels such as dumpy, quickset, precise, auto, temporary and permanent adjustments of dumpy and auto level, Auto levels, self compensating instrument, laser level. Difficulties in levelling work, reduction of levels, corrections and precautions in levelling work, problems.

Contour – definitions, contour interval, equivalent, uses and characteristics of contour lines, direct and indirect methods of contouring.

Running a level line, L section, cross section, methods of interpolation Grade contour – definition, use, setting out in field

Computation of volume by trapezoidal and prismoidal formula, volume from spot levels, volume from contour plan.

4. Areas

Area of a irregular figure by Trapezoidal rule, average ordinate rule, Simpson's 1/3 rule, various coordinate methods.

Planimeter : types of planimeter including digital planimeter, area of zero circle, use of planimeter.'

5. Theodolite Traverse

Various parts and axis of transit, technical terms, temporary and permanent adjustments of a transit, horizontal and vertical angles, methods of repetition and reiteration.

Different methods of running a theodolite traverse, Gales traverse table, balancing of traverse by Bow-Ditch's transit and modified transit rules Problems on one-plane and two-plane methods, omitted measurements Precautions in using theodolite, errors in theodolite survey.

Use of theodolite for various works such as prolongation of a straight line, setting out an angle.

6. Plane Table Surveying

Definitions, uses and advantages, temporary adjustments, Different methods of plane table surveying,
Two point problem,
Errors in plane table survey, use of telescopic alidade

References :

1. Surveying and levelling, Vol – I & II (*Kanetkar and Kulkarni*) – Pune Vidyarthi Griha, Pune.
2. Surveying and levelling (*N. N. Basak*) – Tata McGraw Hill, New Delhi.
3. Surveying (*R. Agor*) – Khanna Publishers.
4. Surveying Vol – I (*Dr. K. R. Arora*) – Standard book house.

