



Practical 1 – Establishment of Triangulation

Aims

1. Learn the basics of the establishment of triangulation figures.
2. Make observations of horizontal and vertical directions.
3. Understand the computations related to triangulation.

Arrangement

1. Group: work in group with **FIVE** to **SIX** student members.
2. Location: Feng campus – Rod El Farag.
3. Data: based on Lab. schedule. (We will give an advance notice if weather is not available)

Materials

1. *Tutorials*
 - a. Follow the steps of triangulation according to lecture notes.
2. Manuals
 - a. Trimble M3 total station (or others from land surveying Lab.) manual.

Equipment

1. Trimble M3 total station or others from land surveying Lab.
2. Tripod.
3. Rod and prism.

Task

1. *Field Work*
 - a. Make observations for a proper braced quadrilateral.
 - b. Observations **MUST** include horizontal directions, vertical angles, and distances.
 - c. A minimum of *TWO* arcs are required at each occupation.
2. *Office Work*

- a. Perform necessary computations to gain the horizontal directions/angles, vertical/zenith, and side lengths.
- b. Adjust the observed quantities using appropriate methods (e.g., equal shift)
- c. A *SCALED* sketch of the observed figure using CAD software.

Submission

Each ***student*** is required to submit a hardcopy report with a title page (student name, BN, Subject name and code, Practical number) that contains:

1. Observation field book.
2. All computations and adjustments.
3. Accuracy checks w.r.t quality standards of triangulation.

The report must reflect the understanding of each student to the tutorial and copied versions will be deprecated. What you have learned in this practical may be re-assessed in the final exam.

The report should be delivered to your tutor before the submission deadline.

Submission deadline: Two weeks after the tutorial schedule.

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