On Tour

Genre

Ensembles will bring their surveying instruments *On Tour* and triangulate an inaccessible point. *On Tour* will have ensembles applying their knowledge of geomatics and their land surveying skills.

Artists

On Tour ensembles can include up to four members.

Instruments

Ensembles should bring the following equipment:
- a total station without reflector-less capability
- a tripod
- a plumb bob
- a measuring tape
- a prism rod and prism
- a field book
- an FE-approved calculator

Tracks

Ensembles will be assigned timeslots the day of the competition.

Ensembles will be provided a starting location – northing (N), easting (E), and elevation (Z) – and a fixed backsight for bearing. Ensembles will traverse to two locations and determine the (N, E, Z) of an inaccessible point. Ensembles will be complete field measurement and submit a field book with calculations.

Time Score – ~33% of Total Score
Judges will rank ensembles by time spent completing field measurements. The ensemble that completes the measurements in the shortest time will receive the maximum possible time score, and the ensemble that completes the measurements in the longest time will receive one-half of the maximum possible time score.

Accuracy Score – ~33% of Total Score
Judges will rank ensembles by a total error value calculated using the following formulae:

$$\text{Total Error } \varepsilon_T = \text{ Northing Error } \varepsilon_N + \text{Easting Error } \varepsilon_E + \text{Elevation Error } \varepsilon_Z$$

$$\text{Northing Error } \varepsilon_N = \left| \frac{\text{Reported Northing } N_R - \text{Correct Northing } N_C}{\text{Correct Northing } N_C - \text{Starting Northing } N_S} \right| \times 100$$

$$\text{Easting Error } \varepsilon_E = \left| \frac{\text{Reported Easting } E_R - \text{Correct Easting } E_C}{\text{Correct Easting } E_C - \text{Starting Easting } E_S} \right| \times 100$$

$$\text{Elevation Error } \varepsilon_Z = \left| \frac{\text{Reported Elevation } Z_R - \text{Correct Elevation } Z_C}{\text{Correct Elevation } Z_C - \text{Starting Elevation } Z_S} \right| \times 100$$

The ensemble with the lowest total error will receive the maximum possible accuracy score, and the ensemble that with the highest total error will receive one-half of the maximum possible accuracy score.

Field Book Score – ~33% of Total Score
Judges will assess submitted field books for completion. Field books should include trigonometric leveling data, calculations, and a birds-eye sketch of the triangulation geometry. Each omission of a necessary data point or calculation from the field book or each error on the sketch will incur a penalty equal to one-twentieth of the maximum possible field book score. The field book score is non-competitive, and multiple ensembles can achieve the same field book score.

Notes

Direct any RFIs to conference organizers. This section will be updated to include RFI responses.