

Surveying Competition

1.0 Overview

All engineers should be able to understand the methods that current technologies are based on. With readily available portable GPS navigation systems and other similar technologies going for lower and lower prices every day, it is easy to forget how much of a luxury they truly are. The objective of this competition is to use historical means to measure the horizontal angles and distances of a triangle. By requiring at least 75% of all students from the schools competing in this competition to participate in this event, this competition forces everyone to work together and remain organized.

2.0 Participants

- 2.1 The Qualifying Event will require participation of at least 75% of the students at the ASCE Southeastern Regional Student Conference from the competing team. This number will be calculated from the number of student packets picked up at the on-site registration on Thursday March 18, 2010. If a total of 6 student packets are picked up (75% of 6 is 4.5), then 5 students must participate; if a total of 24 student packets are picked up (75% of 24 is 18), then 18 students must participate. The names of the participating students will be recorded by the judges, along with his or her distance, at the time of participation.
- 2.2 The Competition will require the participation of no more than three (3) students. Only one team from each school will be allowed to compete.

3.0 Materials and Equipment

- 3.1 The Qualifying Event will not require any materials or equipment. Each member must bring his/her name badge with them to the judges at the time of participation so that the judges can identify the participant and school.
- 3.2 For the Competition, only the materials and equipment listed below will be allowed to be used. The participating students will be required to bring all materials with them.
 1. 100 ft tape (one)
 2. plumb bob
 3. Chaining pins (one set)
 4. Two range poles
 5. FE approved calculator
 6. Engineering paper
 7. Scrap paper
 8. Engineering scale and drafting triangles
 9. Pencils and erasers

4.0 Qualifying Event

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- 4.1 The Qualifying Event will consist of pacing a distance. Participants will only be allowed to pace the distance once. From this, each participant must estimate the distance from his or her pace length. Judges will record the estimated distance, in feet, along with the name of the participant. This list will be kept until the start of the Competition. Participants do not have to pace the distance at the same time. All participation must occur within the allotted time frame on the Official Schedule.

5.0 Competition

- 5.1 The Competition will begin with the list of names and paced distances from the Qualifying Event being passed out. Each team will receive the list from their school only. From this list, the team must decide upon a final distance, in feet, to submit to the judges. Teams will be given 15 minutes to make their submittals.
- 5.2 From the final submitted distance, judges will select the five (5) most accurate teams to move on. In the event of a tie, the school with the greatest percent participation will be favored.
- 5.3 The five (5) teams selected to move on will survey distances and horizontal angles. The number of sides to the traverse will be unknown until the Competition has begun. Each team will be given a location to start, and will be given no more than fifteen (15) minutes to survey each angle and each distance. Each team will be given the bearing of one side of the traverse. No more than 30 minutes (after the surveying of all angles and distances has been completed) will be given to finalize calculations and submittals.

6.0 Submittals

- 6.1 There are not submittals required for the Qualifying Event.
- 6.2 For the Competition, a plat (drawn to scale, with bearings and distances) must be submitted on engineering paper. Field notes, in standard surveying format, must also be submitted on engineering paper. Any adjustments made based on probable errors should be noted on the field notes. All units should be based on the accuracy of the equipment used.
- 6.3 Any work that was done and/or data that was recorded to compute the angles and distances of the traverse must also be submitted.

7.0 Judging and scoring

- 7.1 Judges will rank the teams that survey the traverse based on the following criteria:
1. Linear misclosure and accuracy (80%)
 2. Quality of the plat and field notes (20%) (This part will also act as a tie breaker in the event of a tie)
- 7.2 The team with the best overall submittal from the traverse part will be the winner of the surveying competition.

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7.3 Points will be allotted as follows:

1.	Best traverse submittal	30 points
2.	Next best traverse submittal	25 points
3.	Next best traverse submittal	20 points
4.	Next best traverse submittal	15 points
5.	Next best traverse submittal	10 points
	All other participating schools	3 points