

The purpose of this competition is to test teams (comprised of three members per team), on basic surveying techniques such as taping, leveling, and traversing with non-electronic instrumentation. Each participating university may enter only one team for the Great Surveying Race of 2008. It is the responsibility of each competing team to insure that their equipment is properly adjusted, calibrated, and is in good working order. Non-programmable calculators are allowed as long as they meet current National Council of Engineering Examiners (NCEE) specifications for use in National Examinations:

The following are the only calculators that will be permitted in the exam room for the 2008 NCEE exam administrations.

- Casio:** All **fx-115** models. Any Casio calculator must contain **fx-115** in its model name.
- Hewlett Packard:** The **HP 33s** and **HP 35s** models, but no others.
- Texas Instruments:** All **TI-30X** and **TI-36X** models. Any Texas Instruments calculator must contain either **TI-30X** or **TI-36X** in its model name.

1. Taping Distances Task (Timed)

Each team will tape distances among fixed points identified by the judges. Each team is restricted to use a single 100-foot or 101-foot steel tape that may be coated or uncoated, and may be of ordinary or of invar steel. Optional equipment may include tape thermometers, plumb bobs, tension handles, chaining pins with rings or quivers, and range poles. Electronic distance measuring equipment including lasers may not be used. All distances measured will be used for the traversing task. The Judges will determine if any gross systematic errors are present, based on their private controlled survey to determine the "true" parameters of the Race Course. Unacceptable errors will require re-taping to qualify for the minimum closure precision of one part in 3,500 that does not contain blunders such as a defective tape or the misreading of a 101-ft tape. The additional time to correct such a blunder will be included in that team's total timed record.

2. Leveling Task (Timed)

Each team will run a level loop from one benchmark to another benchmark turning through all the fixed points used for taping. Each team is restricted to use a single instrument consisting of a Dumpy, Wye, Tilting, or an Automatic Level none of which are equipped with an optical wedge micrometer. A single tripod may be used that is compatible with the level instrument, and the tripod may be of wood, metal, fiberglass, or composite carbon fiber with stiff legs or adjustable legs. A leveling rod may be used that is extendable (Philadelphia), multiple part (Frisco or Chicago), and may be of wood, metal, fiberglass, or composite carbon fiber. Rod levels may not be used, but "waving" the rod is permissible. Automatic Bar-code reading levels and Bar-code rods may not be used. Lenker-type rods may not be used. Theodolites with Electronic Distance Meters and/or Total Stations may not be used for trigonometric leveling using vertical angles. Maximum misclosure allowed is $\pm 0.05 \text{ Ft} \sqrt{\text{Miles}}$, and no computational adjustment will be required of the teams, but computation of misclosure is required. Leveling "busts" will require re-observation of the loop until the closure specification is met, and the additional time will included in that team's total timed record.

3. Traversing Task (Timed)

Using the distances measured in the Taping Task, each team will run a closed traverse of interior angles among all of the fixed points identified by the judges. Each team is restricted to use a single theodolite/transit that has a maximum precision of twenty arc seconds and is a repeating instrument (has an upper and lower motion) and is not a direction theodolite. Electronic theodolites or electronic transits are not allowed, nor are Total Stations allowed. The optical instruments used may have integral optical micrometers for reading angles in degrees-minutes-seconds or grads/gons or mils as long as the precision is limited to no better than the equivalent of 20 arc seconds. The optical instruments may be equipped with an automatic compensator for vertical angles. Each and every horizontal angle will be turned for a minimum of three times, (two repetitions), in Direct and three times, (two repetitions), in Reverse and then averaged to produce a single angular value for the set. Each team is restricted to a maximum of three stiff-leg or three adjustable-leg tripods (and may be of wood, metal, fiberglass, or composite carbon fiber), with a maximum total of three tribrachs, if desired. Tribrach targets may be used in lieu of Range Poles or Chaining Pins, if desired. Maximum misclosure allowed is one part in 3,500 precision. No computational adjustment will be required, but computation of misclosure (by latitudes and departures) is required, using a starting azimuth provided by the Judges between two successive points in the closed traverse loop.

Judges

The Judges will be comprised of three Registered Land Surveyors that are not members of the faculty of any university participating in the Surveying Race. The Judges will determine the points to be used in the Surveying Race, and will determine the overall winner placement based on the shortest times after the minimum closure specifications are met for both the Leveling and the Traversing Tasks. The Judges will check the computations of each team's field observations as recorded in their field books. The field books will be surrendered on completion of each team's computations, and their total time for all events will then be recorded.

No consultation with faculty, professional surveyors or engineers, or comparisons with other teams will be allowed. Judges may be consulted regarding the administration of the rules.

Blunders in computations will result in the team being disqualified. In the event that more than one team is disqualified, a runner-up competition may be performed after all qualified teams have completed their submissions if the total number of remaining qualified teams are a lesser number than the number of available awards. The Judges will make the final decisions for the ranking placement of the competing teams. Awards and bragging rights will be presented at the banquet.

Note: With the advent of Spring in South Louisiana, each team's performance will be subjected to the equal liability of injury from tripping in crawfish holes, bites from poisonous snakes and attacks from local campus alligator dens. Contestants pleading for mercy from the aforementioned hazards as well as from high cholesterol loads, heartburn from Creole and/or Cajun food, etc., will not be entertained. Race your surveyors at your own peril, and please use surveyors' flagging tape to bind all wounds.

Contacts:

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