Surveying Competition Rules

Overview
The surveying competition will consist of 4 separate tasks, each involving 3 team members to demonstrate the ability to apply the techniques of land surveying.

Participation in this event is limited to 1 team per college/university. Each team may consist of 6 to 12 students. One member of the team may only perform a maximum of two (2) tasks. Members for each task will be randomly chosen on the day of the competition.

The four tasks will be as follows:
1. Pacing
2. Differential Leveling
3. Building Stakeout
4. Determining the depth of a proposed sewer line and the cut at each station

Scoring Breakdown
For each task, each team will be evaluated according to the parameters provided within the description of each event. The team with the highest points from all four (4) tasks will be the overall winner. See the attached Scoring Summary Sheet for a detailed scoring breakdown.

Materials
This is a project-oriented problem; therefore, the field methods may vary amongst the teams. The use of traditional surveying equipment (transits/theodolites/total station, tapes, prisms, prism poles, conventional optical levels, level rods), is recommended. Proper safety equipment is required. Examples of appropriate safety equipment include eye protection for the staking crew, safety vests, and protective head and foot-ware. Digital levels, robotic total stations, GPS – RTK receivers are NOT permitted.

Judging
Each event will be scored out of 100 total possible points, therefore each team will have the opportunity to achieve a possible total of 400 points. The decision of the judges is final. The top three teams with the highest overall score will be awarded.

** Please submit any questions regarding these rules to: (your name) at (your email) **

Event Descriptions
#1  **Pacing**
Teams will consist of three randomly chosen members. At the site, there will be two triangles staked out. Teams will be given a randomly chosen triangle. Each member will start at a different vertex of their given triangle. Each team will be timed. Once the signal has been given to begin, each member will pace the perimeter of the triangle in a clockwise fashion, returning to the point at which they began. Each member may pace the perimeter of the triangle up to 3 times. A distance will be recorded with the official at each station where the student started after they have completed their pacing.

#2  **Leveling**
Teams will consist of three randomly chosen members. At the site, each team will be required to start from a benchmark of known elevation and perform differential leveling operations to establish the elevation on another benchmark. The elevation will be recorded with the official at the final benchmark.

#3  **Building Stakeout**
Teams will consist of three randomly chosen members. Using radial stakeout techniques, teams will be asked to lay out a proposed building with appropriate offsets to accommodate over dig. The proposed building plans will be mailed out to each school on ______________________ so that they may perform necessary calculations prior to the day of the event. Teams will be given sixty (60) minutes to complete this task during the competition weekend. Teams will be judged on their accuracy with a precision in 0.1 ft. increments.

#4  **Determining depth of proposed sewer line and the cut at each station**
Teams will consist of three randomly chosen members. At the site, teams will find centerline and offset stakes for a proposed sewer line. On the day of the competition, each team will be given the invert of the existing pipe where the proposed sewer line will connect. Teams will also be given the slope and size of the proposed sewer line. Teams will have to determine the amount of cut at each predetermined station location and the elevation of the invert at the opposite end of the proposed sewer line. Station numbers will be supplied on the centerline stakes. Calculations will be recorded by each team in the field and turned into the official once the task has been completed. Teams will be given sixty (60) minutes to complete this task.

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