



HOSTED BY CAL STATE FULLERTON

PACIFIC SOUTHWEST CONFERENCE 2020

SURVEYING RULES



Surveying Competition

Pacific Southwest Conference 2020

OBJECTIVE

The surveying competition will consist of 3 surveying tasks that will assess each team's ability and understanding in basic surveying skills. Events will cover topics in surveying, trigonometry, equipment set-up and more.

COMPETITION RULES

The following set of rules will be used for the 2020 ASCE Regional Student Conferences and the 2020 ASCE Surveying Championship Finals Competition. The top team from each regional conference - that meets ASCE eligibility rules - will be invited to the ASCE Surveying Championship Finals Competition on May 30, 2020.

The educational and professional goals of this competition include a recognition of the importance of basic surveying principles to all civil engineering projects. Students will be required to use standard field equipment and procedures to solve common problems encountered in industry. A clear understanding of and ability to apply basic surveying principles will assist the graduate civil engineer in communicating and working with the surveying professionals on the job site and during the design process.

The top three (3) surveying teams at each 2020 ASCE Regional Student Conference will receive a plaque and the top team will be invited to participate in the 2020 ASCE Surveying Championship Finals Competition on May 30, 2020, in Lawrenceburg, Indiana. The top three (3) teams at the 2020 ASCE Surveying Championship Finals Competition will receive a plaque and monetary award to be given to their ASCE student chapter.

The UESI Surveying and Geomatics Division is pleased to announce that the 1st Annual ASCE Surveying Championship Finals Competition will be held on Saturday, May 30, 2020, in Lawrenceburg, Indiana. The Competition provides students the opportunity to display their surveying skills to practitioners in the field.

The ASCE Surveying Championship Finals Competition will serve as the opening event for the 4-day 2020 UESI Surveying & Geomatics Conference hosted by Cincinnati State Technical and Community College in partnership with the Utility Engineering and Surveying Institute of ASCE.

After competing on Saturday, May 30, 2020, students will be invited to register for professional- or student-oriented workshops on Sunday, May 31, 2020, and professional track sessions on June 1 and 2, 2020. Details of the workshops and track sessions will be available at www.surveyingconference.org on or before December 31, 2019. Students will also be invited to register for and attend a field trip and presentation on the Bilby Tower located in Osgood, Indiana on Sunday evening. An awards banquet will be held during lunch on Sunday, May 31, 2020, for the 2020 ASCE Surveying Championship Finals Competition.



ELIGIBILITY TO ADVANCE

Eligibility to advance to the 2020 ASCE Surveying Championship Finals Competition includes those eligibility standards set by ASCE. These standards can be found at https://www.asce.org/eligibility_for_national_competitions/.

REQUEST FOR INFORMATION (RFI)

Requests for Information (RFI) regarding the 2020 surveying competitions are to be directed via email to oemora@cpp.edu. Official responses will be posted to the Collaborate site for this competition. **The cutoff date for submitting a RFI is Friday, January 17, 2020.** Those received after this date will not be acknowledged or addressed. RFIs will be compiled and published in a RFI summary on or about February 1, 2020. **Teams are strongly encouraged to contact the Surveying Rules Committee to avoid misinterpretation of rules at the Competitions. All RFIs will be made public.** Teams are also responsible for all information provided in the Rules and Regulations, the general questions and answers posted to the Collaborate site, and information given at competitions from the date of the release of the information.

JUDGING

For each task, teams will be evaluated according to the parameters provided within the description of each task. The team with the highest number of points from the sum of all four (4) tasks will be the overall winner. In the event that multiple teams receive the same overall score, the shortest overall time for all of the events will be the tie breaker. Each task 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 recognized.

SCORING

Tasks	Score
1. Pacing	/100
2. Leveling	/100
3. Building Stakeout	/100
4. Proposed Sewer Line	/100
Event Total	/400



OVERVIEW

Participation in the surveying competition is limited to one (1) team per college/university. Each team may consist of up to six (6) total students. In keeping with the values of ASCE, each surveying team that registers 2, 4, or 6 members shall be comprised of 50% males and 50% females. Each surveying team that registers 3 members shall include at least one male and one female member. Each surveying team that registers 5 members shall include at least 2 male and 2 female members.

The surveying competition will involve four (4) separate tasks, each comprising a maximum of four (4) team members to demonstrate the ability to apply the techniques of land surveying. Members for each task will be randomly chosen on the day of the competition. One member of the team may only perform a maximum of three (3) tasks.

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

The time to complete each task will be recorded by a judge and will be used as a tie breaker.

MATERIALS

The tasks are project-oriented problems; therefore, the field methods may vary amongst teams. The following equipment and instruments are allowed:

- Transits/theodolites/total stations
- Tripod
- Steel measuring tape (no longer than 100 feet)
- Prisms
- Prism poles
- Conventional optical levels
- Level rods
- Non-programmable calculator (EIT qualifying)

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.

ASCE UESI will provide all necessary surveying and safety equipment with the exception of appropriate footwear at the National Competition only. ASCE UESI's representative will provide training on the equipment the day of the event for the National Competition only. Teams are responsible for all necessary surveying and safety equipment for regional competitions.



TASK DESCRIPTIONS

1. Pacing

At the site, there will be a triangle staked out. Up to three (3) participating members will start at a different vertex of the given triangle. Once the signal has been given to begin, each participating 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. Each team will submit a final recorded ground distance for each side of the triangle upon conclusion of their pacing. Teams will be evaluated on their accuracy and will be given a maximum of ten (10) minutes to complete this task. Each team's overall time for this task will be recorded by a task judge.

2. Leveling

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 of a temporary point of unknown elevation. Each team will submit a final recorded elevation for the temporary point of unknown elevation upon conclusion of their differential leveling operation. Teams will be evaluated on their accuracy and will be given a maximum of forty five (40) minutes to complete this task. Each team's overall time for this task will be recorded by a task judge.

3. Building Stakeout

At the site, using line and grade stakeout techniques, teams will be required to stake out a proposed building with appropriate offsets. Two (2) designated control points for set up and backsight will be given to measure the angles and distances to the proposed building points. The angles and distances to be calculated and measured will be given on the day of the event. The judges will measure the hubs/tacks as set by teams upon conclusion of their line and grade stakeout. Teams will be evaluated on their accuracy and will be given a maximum of forty five (40) minutes to complete this task. Each team's overall time for this task will be recorded by a task judge.

4. Determining depth of proposed sewer line and the cut at each station

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 judge upon conclusion of the task. Teams will be evaluated on their accuracy and will be given a maximum of thirty (30) minutes to complete this task. Each team's overall time for this task will be recorded by a task judge.

