

## **2018 NSPS STUDENT COMPETITION** **INSTRUCTIONS AND INFORMATION**

**INTRODUCTION:** The 2018 NSPS Student Competition will be held in conjunction with the Spring meeting of the National Society of Professional Surveyors during the Western Regional Surveying Conference. This is a joint conference of The Nevada Association of Land Surveyors (NALS), the Arizona Professional Land Surveyors (APLS) and the Utah Council of Land Surveyors (UCLS) and the Western Federation of Professional Surveyors (WestFed). It is being held at the Luxor Hotel in Las Vegas, Nevada. The competition will begin prior to the actual start of the conference and overlap the NSPS meeting by two days.

The Competition will be held February 17-21. There will be a briefing session early on the evening of the 17<sup>th</sup> that all teams and advisers are required to attend. Critical instructions for the next day's activities will be provided. The exact time and location for this briefing session is still being confirmed. The 18<sup>th</sup> will be the Field Day, the 19<sup>th</sup> will be the Office Calculation Day and the 20<sup>th</sup> will be the Presentations.

The awards will be presented on the afternoon of the 21<sup>st</sup> at approximately 1pm at the beginning of the NSPS Board of Directors meetings.

As with 2017, there will be two separate judging divisions, one for students matriculated into Associates degree programs and one for students matriculated into Baccalaureate degree problems.

**PRE-NOTIFICATION:** To facilitate communications, all teams planning to participate in the 2018 NSPS Student Competition must submit the *Pre-Notification Form* to the Competition Coordinator: A. Richard Vannozzi, MS, PLS to notify NSPS of their intentions to participate in the competition. The following Pre-Notification Form should be completed, scanned and sent via email to Mr. Vannozzi as a PDF at the below email address on or before **November 3, 2017**.

Please direct any questions concerning the competition to Mr. Vannozzi **at your earliest convenience.**

Primary Contact via email: [vannozzia@wit.edu](mailto:vannozzia@wit.edu)

A. Richard Vannozzi, MS, PLS, Asst. Professor  
Department of Civil Engineering and Technology  
Wentworth Institute of Technology  
550 Huntington Avenue  
Boston, MA 02115

Personal Cell: 617-429-7036

## **GENERAL INSTRUCTIONS**

The topic for the 2018 competition is **“Surveying Service”**. You might think of it this way: “What would you do if you had an opportunity to be part of a team traveling to a developing country to provide surveying and mapping in support of an engineering design or construction project such as a community well, small bridge, new school or roadway/utility corridor?”

Many surveyors, students, and practitioners, have opportunities to work on projects in developing countries. This might be through organizations such as *Engineers without Borders* or other local, national or international organizations. One of the challenges they face is that they often must survey without all the “comforts of home” and go back to the basics. Sometimes this means that you are using outdated equipment that you see for the first time upon arrival, and sometimes it means that you have essentially nothing and must improvise and be particularly creative and clever to get the job done....and everything in between.

**This year’s competition will be a head to head surveying and mapping competition.** Teams will be given a parcel of land and using a very basic set of equipment complete, a project scenario meant to mimic what one might find on such short service trips. Teams will be given one day to do their field work, and a second day to create their map and prepare a presentation. On the third day, they will present their project and map to a panel of judges.

This year’s competition will require very little, if any, technical preparation before attendance, so that the earlier conference date should not be a concern.

It is hoped that this year’s competition will accomplish three (3) specific things:

1. Address the feedback from many students that they would like a head to head competition for a change.
2. Limit the amount of “pre-competition” technical preparation so that more schools can attend for the first time.
3. Help students see ways that they can utilize their professional skills to serve those less fortunate in a meaningful way.

## **EQUIPMENT AND PREPAREDNESS (30 Pts)**

Each team must bring the following equipment. The reason for what might seem like multiple pieces of equipment is to have a spare in case of malfunction or damage. Field day instructions may limit the type and number of pieces of equipment you will be allowed to use at a given time:

- Two (2) Tripods
- Two (2) Automatic Levels (No Digital Levels, Levels do not need to be identical)
- Manufacturer’s User’s Manual for the Automatic Levels
- Two (2) Fiberglass Philadelphia Rod
- Two (2) Steel tapes

- Four (4) Plumb-bobs
- Two (2) Hand-compasses (traditional or Suunto) reading to the nearest degree.
- Two (2) Rolls of flagging, (each one, a different color)
- Two (2) Three lb. hammers.
- Lumber Crayons (Keel),
- Redi-Mark type Permanent Markers for marking stakes.
- One (1) Safety vest per team member.
- Small First Aid Kit, such as this American Red-Cross model:  
(<https://www.redcrossstore.org/item/329165>)
- Small flashlight.
- Two (2) Clipboards, each with a pad of engineering paper.
- Two (2) Blank and unused Fieldbooks such as an “*Elan Economy Field Book E64-8x4S*”. The fieldbook chosen should have 6 columns on the left side of the page and be gridded on the right side. The book should be brought completely blank. Do not even number the pages, put an index in it...completely blank.
- One (1) copy of a general surveying text book such as “*Elementary Surveying, An Introduction to Geomatics*, by Charles Ghilani. It does not need to be this book, nor does it need to be the most recent edition of the chosen text.
- Two (2) calculators. Only those models from the approved NCEES exam list will be allowed to be used.
- Abbreviated Written Safety Plan 2-3 Pages. An Emergency Contact Information Sheet will be provided to each team.
- Ample supply of water.
- Team Lunch.

Students will be expected to dress for the weather and terrain. All students must wear boots/shoes (no sneakers, open toed shoes, sandals, etc.) and long pants. Steel toed shoes are not required. Shorts will not be allowed. Teams should monitor the Las Vegas weather prior to departing for the competition to make sure they have the proper outdoor and other clothing necessary for a full day in the field. Individuals not dressed properly, as determined by the competition coordinator, will not be allowed to compete.

At some point during the Field Day, each team will be visited and judged on their equipment and preparedness based on the above criteria (and any supplemental requirements provided in the time leading up to the competition, if any).

Other equipment and supplies that students will need will be provided. NSPS is working with the local Las Vegas chapter of the Nevada Association of Land Surveyors to provide other equipment and supplies for student use so that students will not need to travel with more equipment than is listed above. Students may be provided with Optical or Electronic Theodolites or Total Stations with optical or laser plummets. Any instruments provided will also include a manufacturer’s user’s manual and will be in full working order with ample batteries. Student teams will be expected to be able to figure out how to operate any equipment they are provided using the provided user’s manual.

Students will not be provided with any data collectors, GPS, scanning or UAV technology nor will these technologies be allowed. At the opposite end of the technological spectrum, students will not be provided with or be expected to use Engineer's Transits, Plane Tables, Alidades, Chains or other types of antique equipment. All fieldnotes are expected to be taken by hand. The use of the internet, smart phones, tablets or laptops in the field is prohibited except as follows:

- Cell phones can be used for communication among team members;
- Still photographs documenting the field work may be taken for use in a team's presentation. No video may be taken;

*Accessing the internet for any competition related purpose during the field portion of the competition is strictly prohibited.*

Violations of these rules may result in disqualification of a team. Sanctions for violations will be determined by the competition coordinator in consultation with the chairman of the NSPS Education Committee and will be final.

Team advisers will need to be in the field the entire day, as well.

### **THE PROJECT AND FIELD SURVEY (Day 1)**

**TRANSPORTATION: Each team will be responsible for their own transportation to the project site which will be on public land within approximately 30-45 minutes from the hotel. The exact location is still being finalized. Teams will be expected to follow all rules of their home institution regarding travel in vehicles such as those related to insurance, vehicle rental, eligibility of drivers, seatbelt use, the obedience of traffic laws, distracted driving, etc.**

As mentioned above, teams will be given a parcel of land and using a very basic set of equipment, complete a project scenario meant to mimic what one might find on such short service trips. Students should expect that this project will include measurements at varying precisions, such as for cadastral (land boundary) or site detail mapping. This will be a plane surveying exercise. Students should be prepared to perform basic plane surveying calculations in the field based on their field measurements and as required to set out the missing parts of a simple geometric shape. For example, you might be given two stakes at corners of a closed geometric figure (a parcel) and be asked to layout that parcel on the ground and map the features of that parcel. At the beginning of the field exercise the team will be given the specific instructions and the detail to be included in their field survey, the required precision and other information necessary to map and define their team's parcel.

## **OFFICE CALCULATIONS, MAPPING AND PRESENTATION (Day 2)**

After the completion of the field work on Day 1, students will have until 5 pm on Day 2 to reduce their field data, complete all required calculations and draft their final map, at which time they will need to submit a 24"x36" PDF of their map to the competition coordinator. All maps will need to be monochrome (B&W). Teams can continue to work on their presentation until check-in for the presentations on Day 3, usually around 7:30am. NSPS will print each team's map overnight between Day 2 and Day 3 and have them available on the morning of Day 3 for the teams to display for judging. During Day 2, NSPS will be providing teams with a room in which they are expected to work from 8am until they are finished or 5pm, whichever comes first. Teams may work elsewhere before and after the times that the NSPS room is provided.

Teams may utilize any calculation, mapping, cartographic, presentation or visualization software for which they have appropriate academic use licenses. Though taking one's own field equipment is often prohibitive and outdated or unfamiliar equipment is more the norm than the exception when on surveying expeditions such as what we are mimicking in this exercise, Laptops and software travel well, and it is not uncommon to have full access to all the software you are used to using. So what might seem like a double standard, of rudimentary field tools and state of the art computing power, this is quite common. Trial versions of software should not be utilized. Teams should not expect that the internet connections will allow for them to access software license servers, so licenses should be "borrowed" or "stand alone" in nature. To test this, teams should make sure all software they wish to use functions without an internet connection. Teams that are unsure about their ability to access their software under these competition conditions should see their school's IT helpdesk prior to the competition.

**PLAN: (30 points)** Each participating team shall prepare a one sheet map of the project at an appropriate scale. The dimensions of the map shall be 24 inches by 36. The map shall include an appropriate title block with the school name, logo, and full names of all team members. The maps will be displayed on the day of the oral presentations at the competition. Teams will be provided detailed mapping specifications and plan scoring rubric prior to beginning the field exercise.

## **TEAM PRESENTATIONS (Day 3)**

**ORAL PRESENTATION: (30 points)** The presentation should be a coordinated group effort. Teams will be provided with a podium, LCD projector and screen. For initial planning purposes, teams should assume a 25-minute presentation, including 5 minutes of questions from the judges and the audience. The specific amount of allotted time is subject to change once the exact number of competing teams is identified. Teams must include in their presentations their conclusions (reflections) on any lessons learned during the competition might inform or relate to their understanding of "Surveying Service". Teams will be provided a detailed scoring rubric for their oral presentation prior to beginning the field exercise.

The announcement and presentation of the first, second and third place awards will be at approximately 1pm on the day following the Presentations (Day 4) at the beginning of the NSPS Board of Director's Meetings. Final time to be confirmed. All team members are expected to participate in all competition related activities including specifically the pre-competition briefing session, the three days of the actual competition (Days 1-3) and the Awards Ceremony on Day 4.

### **Teams:**

Teams shall consist of not less than four (4) and not more than six (6) members. Team members shall be matriculated undergraduate students in surveying or surveying related programs at the time of the competition in February of 2018 and shall not have graduated at the time of the competition. All work on the project shall be completed by the students on the team, Team members can be full or part-time students.

### **Advisors:**

Teams must also have a faculty advisor who must accompany the team to the competition. The role of the advisor is to be a resource for students by pointing them toward resources that might help them answer their own questions and to help with travel and shipping logistics, safety, and administrative processes. The NSPS student competition is a student activity and is designed for students to have the opportunity to organize, schedule, lead and complete the project on their own. Sometimes this means that student projects are not as "perfect" or "polished" as faculty, administrators or practitioners may envision. An advisor's role is to support and not participate or direct student efforts.

### **FINAL REGISTRATION FORM AND FEES**

A final registration form (Simply update and use the Preliminary Notification Form) must be submitted with a \$400 Registration Fee, per team, to the NSPS Office and postmarked on or before **December 15, 2017**.

*PLEASE NOTE: THIS IS MUCH EARLIER THAN PREVIOUS YEARS  
DUE TO THE EARLIER FEBRUARY CONFERENCE DATE.*

The mailing address for NSPS is:

**The National Society of Professional Surveyors  
5119 Pegasus Court, Suite Q  
Frederick, MD 21704.**

This \$400 registration fee, per team will include access to all student competition specific activities and conference seminars. There may be activities/meals at the conference that are not included such as evening banquets, tours, etc.

Any additional students or faculty who wish to attend will need to pay the applicable regular rates and must register separately.

***GENERAL NOTES ABOUT THE PROJECT:***

The focus of the competition and judging will be how well students plan, organize, accomplish, and present their work.

***NOTES ABOUT THE COMPETITION AND CONFERENCE:***

Detailed judging rubrics, which will be used by the judges for the map and presentation portion of the competition will be provided at the beginning of the field exercise. The rubric for the judging of “Equipment and Preparedness” will be a checklist based on the required team and personal equipment.

All judging rubrics will be returned to teams at the time of the award presentations, at which time the decisions of the judges will be deemed final.

A block of rooms has been reserved for NSPS and includes a limited number of rooms beginning on the night of the 17<sup>th</sup> (Saturday Night). The link to reserve rooms is:

<https://aws.passkey.com/go/SREG0218LXT>

*Subsurface Instruments, Inc.*, a Sustaining Member of NSPS has donated a large quantity of their Magnetic Locators to NSPS to give to programs that send a team to the 2018 Student Competition. I think it is safe to say **that all schools that participate will receive at least one of these Magnetic Locators!** This is a very generous donation with each Locator retailing for approximately \$600, (or 1.5x the Registration Fee!)

## **PRELIMINARY-NOTIFICATION**

### 2018 NSPS Student Competition Registration Form

***Print clearly, please!***

**Please complete and submit this form via email on or before November 3, 2017 to the Competition Coordinator, A. Richard Vannozzi, MS, PLS ([vannozzia@wit.edu](mailto:vannozzia@wit.edu)) as a PDF.**

Date Submitted: \_\_\_\_\_

Associates Degree Program Competition    or     Baccalaureate Degree Program Competition

School: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_                      State: \_\_\_\_\_                      Zip code: \_\_\_\_\_

Team Leader (Student): (1) \_\_\_\_\_

Team Leader email address: \_\_\_\_\_

Team Leader cell phone # (for use at the competition) \_\_\_\_\_

Names of other team members, (matriculated students):

(2)
(3)
(4)
(5)
(6)

Faculty Advisor who will be attending: \_\_\_\_\_

Faculty Advisor email address: \_\_\_\_\_

Faculty Advisor cell phone # (for use at the competition) \_\_\_\_\_