American Society of Civil Engineers
Student Chapter Annual Competition*
Ohio Valley Region
2009
Surveying Competition at Bowling Green, KY
Western Kentucky University Hosting

WKU Survey team members:
Ben Monarch
Jenny Fairchild
Clint Ervin

*http://www.asce.org/students/*
The American Society of Civil Engineers (ASCE) 2009 Ohio Valley Student Conference (OVSC) was hosted by the Engineering Department of Western Kentucky University (WKU) on April 02 through April 04, 2009 in Bowling Green, Warren County, Kentucky. Competitions included were Technical Paper Presentations, Steel Bridge Competition, Environmental Competition, GIS Competition, Concrete Canoe Paper Presentation and Race, Concrete Disc Golf Competition, and a multi faceted Surveying Competition. Approximately 300 students and faculty members were expected to be in attendance for the competitions. The three-day event was conducted at the Complex for Engineering and Biological Sciences, Downing University Center, Mass Media and Technology Hall, and Diddle Arena in Bowling Green. The Concrete Canoe Race, Concrete Disc Golf Competition, and Surveying Competition were held at Basil Griffin Park also in Bowling Green. Schools and Universities that participated were the University of Akron, Carnegie Mellon University, University of Cincinnati, Cincinnati State Technical & Community College, Cleveland State University, University of Dayton, Geneva College, University of Kentucky, Ohio State University, Ohio University, University of Pittsburgh, Point Park University, Stark State College of Technology, Western Kentucky University and Youngstown State University.

C. Warren Campbell, Ph.D., P.E., C.F.M., Associate Professor of Civil Engineering at WKU, and OVSC coordinator, along with Ronald E. Gallagher, Ph.D., P.S., Assistant Professor of Mechanical Engineering and Surveying also of WKU were instrumental in the conference organization and recruitment of competition judges. DDS ENGINEERING, PLLC and HRG, PLLC personnel along with other local firms were recruited to participate as judges in the various competitions. Dennis Smith PE, PLS, Don Pedigo, PLS, Matt Rogers, ET, from DDS ENGINEERING, PLLC and Jim Riney PE, PLS, Terry Foster, PLS and Greg Hamilton, PLS from HRG, PLLC were the judges for the surveying competition. The surveying competition consisted of four (4) parts, Stakeout of a Building or Structure, Differential Leveling, Instrument Setup and Pacing.

The competition was project-oriented. Therefore, the field methods could and did vary among the teams. They were allowed to utilize traditional surveying equipment, transits, theodolites, total station, tapes, prisms, prism poles, conventional optical levels, and level rods. Appropriate
safety measures and equipment were also required for the field phase of the competition, hard hat, eye protection, and safety vests. Digital levels, robotic total stations, and GPS - RTK receivers were not used in the competition.

The survey competition event required teams comprised of a maximum of three (3) people to demonstrate proficiency with the techniques of land surveying as applied to construction layout. Participation in this event is limited to one (1) team per college/university. Experience in the use of conventional surveying equipment along with the elements of coordinate geometry (COGO) and trigonometry as applied in the instance of preparing construction stakeout notes from site plans was recommended.

The judges for the surveying competition were provided with the competition location in Basil Griffin Park in between two (2) baseball fields adjacent to the disc golf course and given the task of setting up the courses and organizing the competition for the day.

Each team was required to complete each of the following tasks.

**Stakeout of a Building or Structure Competition:**

On the morning of the competition, and two hours before the team’s scheduled “start-time”, each team was given a proposed construction site plan showing the detailed location of various building elements. The building layout project included seven (7) building corners and a radius point. A one hundred foot (100’) baseline marked by a hub and tack at each end was provided in the field for the teams. The teams were also permitted to familiarize themselves with the construction site. The initial two (2) hours was utilized by the teams to derive layout calculations and stakeout notes. The teams prepared construction notes for the field layout; the notes were submitted to the judges upon completion of the field layout. Once the teams started the layout they were allowed two (2) hours to complete the field staking. Upon notifying the judges that the staking had been completed, the points placed on the ground by the teams were precisely located by the judges and compared to the actual locations. Points were assessed based on the amount of error at each staked location. The teams were judged on accuracy with time being used as a tie breaker.

**Differential Leveling Competition:**

The teams were provided a bench mark and a reference elevation for the deferential leveling course. They were required to elevate three (3) points identified by the judges along the course and establish a temporary bench mark elevation on a pre-determined point. The competition required a closed loop be completed as well. There was also a thirty (30) minute time limit to
complete the leveling competition. The teams were judged on accuracy with time being used as a tie breaker.

**Instrument Setup Competition:**

The teams were provided a point over which to perform their instrument setup. There was also a fifteen (15) minute time limit to complete the instrument setup competition. The teams were judged on accuracy and time.

**Pacing Competition:**

The teams were provided with a pacing course. The course consisted of three (3) legs over varying terrain. There was also a ten (10) minute time limit to complete the pacing competition. The teams were judged on accuracy with time being used as a tie breaker.

I was honored to be invited to be a judge, and excited about the competition before it got started. Working with the other judges to get the course and survey tasks setup was fun and very rewarding. I was truly impressed once the competition got underway and I saw first hand the interest and commitment to surveying by the students. The students conducted themselves with the utmost confidence, respect and professionalism throughout the competition and the day. The teams were made up of young men and women, some of which were not only competing in the survey competition but also the concrete canoe races and concrete disc golf competition going on simultaneously. Some of the smaller Colleges and Universities had utilized their students and resources for multiple events. The dedication by the students is and should be commended.

The turnout was fantastic. The competition was a success, the weather was great, and the teams completed the survey tasks in the time allotted for the overall competition. The scores were tallied and submitted for inclusion at the business meeting with the presentations made at the banquet held at the Houchens L.T. Smith Stadium the evening of Saturday April 04, 2009.

This competition, the commitment by the Colleges, Universities students, competition coordinators and the judges reassures my faith and commitment to the Surveying Profession. Thank you to the students, faculty, ASCE, WKU and the judges for their time and overwhelming commitment to the surveying profession. These young men and women are the future of surveying.

By: Don Pedigo, PLS
2009 OHIO VALLEY STUDENT CONFERENCE
SURVEYING COMPETITION
OVERALL PERFORMANCE
1ST PLACE

2009 OHIO VALLEY STUDENT CONFERENCE
SURVEYING COMPETITION
STAKE-OUT
1ST PLACE
2009
OHIO VALLEY
STUDENT CONFERENCE

SURVEYING COMPETITION
PACING

2ND PLACE
Surveying Competition Judges (l to r) Greg Hamilton, Terry Foster, Jim Riney, Don Pedigo, Matt Rogers and the WKU student coordinator Sarah Bertke
WKU 2009 surveying team members (l to r); Clint Ervin, Jenny Fairchild. Ben Monarch
Stake-out of building foundation work area
Stake-out of building foundation area
Building foundation stake-out
Judges (l to r); unknown, Don Pedigo, Dennis Smith and unknown
Pacing and Stake-out work areas
Leveling Circuit starting point