SIUE ASCE Student Chapter Participation at the 2014 MidContinent Student Conference

The SIUE American Society of Civil Engineers Student Chapter (ASCE) participated in the 2014 ASCE MidContinent Student Conference April 24-26, 2014 hosted by Oklahoma State University in Stillwater, Oklahoma.

The 2014 SIUE ASCE Steel Bridge Team won Second Place overall out of fourteen participating school teams. The team has been invited and will compete in the 2014 National Student Steel Bridge Competition hosted by University of Akron May 23-24, 2014. The Team also received second place awards for the Stiffness, Economy and Efficiency categories and Third Place for Lightness and placed Fourth in Construction Speed and Display.

The steel bridge competition is an annual event in which student teams design and fabricate their bridges based on highly detailed specifications that change each year. This year’s bridge was 18 feet 1 inch long, 2 feet 3 inches high, about 3 feet 6 inches wide and weighed 275 pounds. At the competition the bridge was assembled in 17.42 minutes by a crew of four builders. It supported the design load of 2400 pounds with an aggregate vertical deflection of 4.553 inches which is the sum of the deflection at three points. Several categories of scoring are used to determine the overall “cost” of the bridge project, with the SIUE bridge coming in at just under $14 million for the second lowest cost.

The members of the Steel Bridge Team were Kermit Christmann (Co-Captain, Builder), Drew Ruholl (Co-Captain, Builder), Zack Dahmm (Builder), Kyle Heinzl (Builder), Logan Fischer, Steve Driscoll, David Molohon, and Thomas Ryan.

The 2014 SIUE ASCE GeoWall team competed for the first time at this competition. The GeoWall competition is also an annual event. The object of the competition is for students to design a mechanically stabilized earth (MSE) retaining wall then test it to see how it will perform in various loading scenarios. The essential technology of an MSE wall uses some type of reinforcement material that is thin and has good tensile strength. Prior to the competition event, the students construct a plywood box according to specification (18 by 18 by 26 inches) and design the reinforcement system with kraft paper which is to be attached to poster board facing. At the competition, the reinforcement is fabricated and the backfill is placed within a given time period, then the assembly is loaded in stages. Scoring is based on the most economical design that retains the backfill soil the best with the least deformation of the wall facing. The members of the team were Amanda Fisher (Captain), Scott Droege, George Heitzman, Jacob Kampwerth, Jesse Tinch, and Kurtis Weber.

Since this was the first time that SIUE has fielded a Geowall team it was a valuable learning experience. They placed sixth out of seven teams.

Technical Paper Presentation
Senior Brandi Jones wrote and presented a technical paper on a required topic ("Natural Disasters – What are the Civil Engineer’s Responsibilities?"). All schools participating at the conference are required to submit their paper and make the formal presentation. The rules also stipulate that the paper is to be the product of the presenter. This the second year in a row that Brandi accepted the challenge. She very competently presented her paper and responded to questions from the judges in a clear and professional manner.

We are proud to congratulate all of these student participants that represented SIUE so well at this important conference.

Respectfully submitted by Brent Vaughn, SIUE ASCE Faculty Advisor.
Photo 1 - The bridge is being erected during the timed assembly period. The four builders are (left to right) Kermit Christmann, Kyle Heinzl, Drew Ruholl and Zack Dahmm.

Photo 2 - Team co-captains Drew Ruholl and Kermit Christmann carefully transferring to Kyle Heinzl the final of piece of the 2400-pound load on to the bridge.
Photo 3 - 2014 SIUE ASCE Steel Bridge Team – Builders (wearing the white hardhats, left to right) are Drew Ruholl (co-captain), Kyle Heinzl, Kermit Christmann (co-captain), Zack Dahmm. Support members (left to right) are Steve Driscoll, David Molohon, Logan Fischer, Thomas Ryan.

Photo 4 - GeoWall Team fabricates the wall facing (posterboard) and reinforcement elements (kraft paper) in this timed part of the competition. These materials are provided by the host school so all teams use the same materials.
Photo 5 - The backfill material, this year consisting of a 50-50 mix by volume of poorly uniformly graded dry sand and crumb rubber, was worked and compacted into place. This is a critical, timed step since any misplaced reinforcement or loose backfill will reduce the strength and stability of the wall.

Photo 6 - The first SIUE ASCE GeoWall team poses with their model wall following the load tests. The team members are (left to right): Amanda Fisher (Captain), Jesse Tinch, Jacob Kampwerth, George Heitzman, Scott Droege, and Kurtis Weber.
Photo 7 - SIUE Civil Engineering student Brandi Jones presents her paper in the Technical Paper event.

Photo 8 - Brandi responds to a question from the judges.