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UNH Engineers Win Regional Bridge-Building Competition

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DURHAM, N.H. – Fifteen civil engineering students from the University of New Hampshire won the American Society of Civil Engineers (ASCE) Northeast regional Steel Bridge Competition, defeating 13 other teams, including Boston-based competitors from the Massachusetts Institute of Technology, Wentworth Institute of Technology, and Northeastern University. Winning the competition, which was in Quebec City, Canada, in April, earned the UNH team a spot at the national competition at Texas A&M May 21, 2011.

“These students deserve a lot of credit: they finished their bridge early, built it on a remarkably low budget, and built it entirely themselves, even though the rules allow them to use local steel fabricators,“ says Raymond Cook, UNH associate professor of structural engineering and an advisor to the team. “They were the underdogs, competing against professionally built bridges costing close to $20,000.”

“Having spent about $700 and topping one of the most prestigious technical universities in the world, we were absolutely thrilled when the host announced our school had taken first place overall. We also are proud to say our bridge is 100 percent student built,” says senior Ian Cannon of New Boston.

Five seniors -- Cannon plus Jon Coupl-Yu of Hampton, Mario LoCoco of Gloucester, Mass., Steven Rzepka of Erie, Penn., and Charles Watkins of Dover – worked with a team of underclassmen to design, analyze, and fabricate the bridge.

The bridge was comprised of two main components: a 15-foot back-span and a five-foot cantilever section, a span only supported from one side, required to support 1800 pounds and 700 pounds, respectively. The final design was selected after analyzing more than 20 different bridge styles, each conforming to space constraints outlined in the rules, and more than 60 combinations of section properties to optimize deflection, weight, and anticipated build time. During the competition, these factors were measured and translated into a cost of the bridge and the team with the lowest cost wins.

The team, which has progressively improved its ranking in recent years and placed fourth in 2010, looked at previous competitions and extracted innovative design options, such as fast-locking connections and customized tools, to maintain a structurally sound design while reducing build time. The students’ efforts were rewarded with the third-ranked lightest bridge at 204 pounds (154 pounds neglecting a weight penalty during competition) and the second-fastest build time, earning them a first place award in construction economy.

Team members are cautiously optimistic about their showing at the national competition in Texas. “The regional scores from across the country seem to indicate a very robust national field, but we are confident the University of New Hampshire will make a good showing,” Cannon says. “With a solid placement in Texas, we wish to bring a new level of prestige to an already fabulous engineering school.”

In addition to the five seniors, the following students participated in the competition: juniors Anabelle Allen and Alex Buessing; sophomores Sean Brown, Mary Donlon, Tristan Donovan, James Halsey, and Jonathan Tatone; and first year students Rachel Beaudry, Devon Christen, and Dongnyon Kim.

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