

# ASME NEWS

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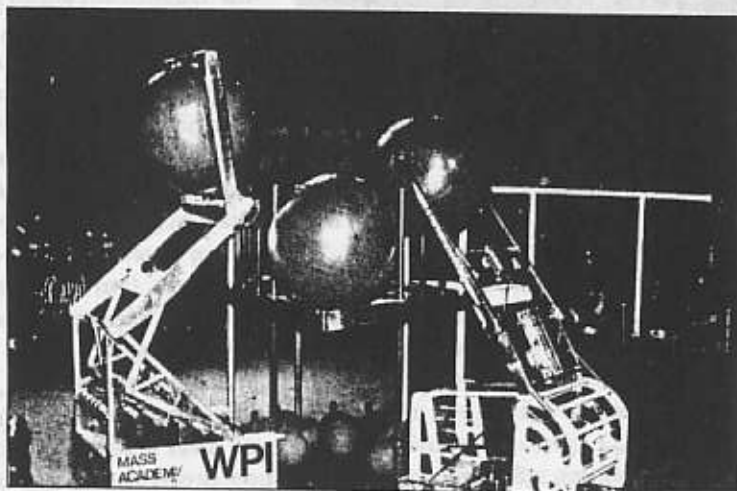
## Teams Wreak Havoc as Students Learn

Benedict Bahner  
ASME NEWS

As throngs of boisterous spectators cheered from the stands, the players moved up and down the field, trying to outmaneuver each other and make a basket while preventing their opponents from scoring. Each time a player made one, fans of the scoring player erupted in euphoric pandemonium, dancing in conga lines to the beat of hard rock music that filled the air.

The players remained calm, however. In success, as in failure, there was no outward display of emotion. There was no reaction at all. But this was not your average sporting event.

Hexagon Havoc is a contest not of athletic ability but of technological prowess. And the players are not the type to be concerned with how well they do, how



Music thumped, spectators cheered and remote-control robots tried to make goals during the high-energy Hexagon Havoc games, sponsored by the US First program.

much money they make or how much media attention they get. That's for their owners to worry about — the teams of high school students, college students and engineering advisors who designed them.

In perhaps the greatest distinction between Hexagon Havoc and other major sporting events, winning is not the main goal. Generating excitement about the pos-

sibilities of what technology can create is.

US First, which sponsored Hexagon Havoc, is the brainchild of Dean Kamen, an ASME member who won the Hoover Medal in 1995. After he successfully pioneered several medical inventions, leading to the formation of his own company, Kamen devised US First in 1992 to get the

*continued on page 6*

## Continuing education helps ensure employability for a lifetime

Emily M. Smith  
ASME NEWS

The definition of "lifetime employability" was explained recently by a member of ASME's Industry Advisory Board (IAB) as "working for as long as you want and liking it." The key to accomplishing both aspects of that definition, IAB members decided, can be found in continuing professional education.

Lifetime employability of engineers was the focus of an IAB meeting in April, when members of the group that advises ASME's Board of Governors gathered to share their views and recommend actions that ASME should take.

"If you come out of school and you're a specialist in a particular area, and you're not willing to learn something new, you probably won't be in that company very long," said William T. Cousins, vice president-elect of ASME Professional Development

who was one of four panelists discussing lifetime employability. "So continuing education becomes extremely important, probably more now than it was 10 years ago.

"The company expects development," added Cousins, a senior engineering specialist at AlliedSignal. "both personal and professional."

The question the IAB members wrestled with was where the responsibility for providing continuing education lays. Those on the IAB agreed that the curricula at most universities is already overcrowded.

"Universities can't do it all," Cousins said. "In the university program of four or five years, they cannot keep up with the rapid changes that are going on in industry." That leaves graduating students playing catch-up the moment they enter industry, he added.

One simple contribution universities can make, said Winfred

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## Contracting can be full-time job

# US First

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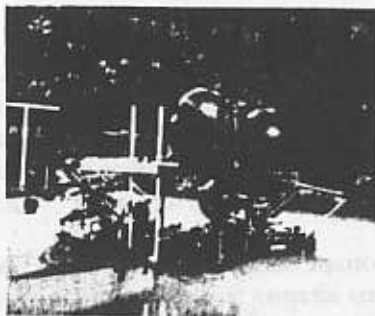
attention of teens. His goal is to get those teens — and everyone else, for that matter — to understand that engineers and scientists are as deserving of celebrity status as sports figures and movie stars.

His method is to generate excitement and challenge by giving student teams a problem to solve, then putting their technological answers to the test in competitions like Hexagon Havoc with other teams.

These tournaments are the culmination of US First ("For Inspiration and Recognition of Science and Technology"), a program that since 1992 has been bringing engineers and students together for seven weeks, designing and building robots to compete in a scientific showdown styled after professional sporting events. In March, a total of 93 teams played Hexagon Havoc in a regional tournament in Manchester, N.H. The national competition was held in April at Disney World's Epcot Center in Orlando, Fla.

US First teams are made up of engineers from industry, students from engineering colleges and high school students. Together, the team members design and build their robots from kits, supplied by US First, that include drill motors, car-seat motors and pneumatic pumps.

Judging by the response of the students, the program has been quite a success. This year, a number



Teams tried to get all 14 of their balls into a hexagon-shaped goal.

successful in capturing their imaginations as well as sparking their interest in science and math, said David Asano, a staff engineer with the communications company NYNEX whose team competed in both tournaments this year.

"The fact that each year we can fill a gym to overcapacity, and have students dancing and cheering for a machine they've built, is an invaluable experience for a student," said Asano, an ASME member who has taken part in US First for four years. "It's every bit as exciting as any pro football or basketball game I've ever seen. I wish something like this had been around when I was in high school."

During the matches, students direct their robots by remote control, getting them to shoot, drop or place all 14 of their team's balls into the goal. The teams can take virtually any measure to prevent their opponents from scoring, including theft. This year, a number

of the robots were built with special compartments to contain balls stolen from other teams so that opponents couldn't retrieve them.

In Hexagon Havoc, a student member of each team was seat-belted to the floor just outside the play area, and could then assist his or her robot by passing balls to the robot or by attempting to shoot balls directly into the goal.

Asano's team, which this year placed third in the regionals and fourth overall in the Orlando finals, had a core group of 20 students from the Quincy, Mass., school system plus eight full- and part-time engineers from NYNEX. The team also had the distinction of being named the team with the best defensive play during their Orlando matches.

"We never went into a particular match with a set strategy," Asano said. "I guess we were just more diligent in counting scores, so we'd know when to shoot our own balls and when to try to box others out, maneuver them into a corner and



Ninety-three teams, made up of engineers and students, took part in the two US First tournaments that were held this year.

just keep them away from the goal so they couldn't score."

His team was one of 15 receiving various honors at the Orlando tournament, including the team from Edison Technical High School, Harris Corp. and the Rochester Institute of Technology, in Rochester, N.Y., which won the national championship. The team from Lakewood High School and the ECI division of E-Systems in St. Petersburg, Fla., placed second.

The winner of the Design Innovation Award was decided by all the students participating in the Orlando games. That award went to Pontiac Central High School and sponsor Delphi Interior and Lighting in Troy, Mich. One student from the team, who has yet to be chosen by Delphi, will receive a full scholarship to Worcester Polytechnic Institute, in Worcester, Mass.

In addition to donating the scholarship, Worcester was also one of 14 universities working with high school students on US First teams this year. Getting more universities involved in the program is a goal of US First as well as an objective of a proposed agreement between the group and ASME.

Although no specific terms have been set, Susan Howland, competition manager for US First, said her organization hopes to work with ASME to expand the number of regional competitions and the teams playing in them, and to develop ways of getting more uni-

versities to participate.

One school currently involved is the U.S. Coast Guard Academy, where the US First program was incorporated as a senior capstone design project last year. The seniors work with and supervise the team's high school students on proto-



Student members, who sat outside of the main playing area, helped their robots score points.

typing, design and testing.

The program is a good addition to the engineering school's curricula because the design assignment is open-ended, so the approaches to solving it are limitless, said ASME member Vincent Wilczynski, who is an assistant professor of mechanical engineering at the academy and has participated in US First for three years.

"You're given a very specific assignment, and you become a member of a team that gets to build something and gets the chance to test it against other teams," Wilczynski said. "The project gives you an almost instant benchmark of your performance, which most of us — whether in industry or academia — rarely get the chance to experience." ■