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OU's SAE team pushes vehicle to its racing limits

By **Jeff Samoray**, OU Web Writer

Despite experiencing vehicle problems during the endurance event, the Oakland University chapter of the Society of Automotive Engineers (SAE) had a respectable finish at the **2004 Collegiate Design Formula SAE** competition, finishing 49th out of 140 teams overall.

During the international competition, held May 19-23 at the Pontiac Silverdome, students from each team raced and tested formula-style cars designed and built by themselves. Restrictions are placed on the car frame and engine so the students' knowledge, creativity and imagination are tested.

After a safety inspection, teams compete by giving presentations on sales, engineering design and cost analysis. They then take to the road for five dynamic events: acceleration, skid-pad, autocross, fuel economy and endurance. Teams from 13 countries participated in the competition.

Oakland had high hopes for a top 10 finish after making significant improvements over last year's vehicle, which finished 13th. All was going well until the second leg of the endurance event, which is worth more than half of the dynamic events points.

"In the endurance event, two drivers take turns at running 11 laps over a one kilometer course, but when we switched drivers we had hot start problems," said Kevin Kolath, master's student in mechanical engineering and OU team leader. "The engine heated up to 250 degrees and we couldn't get the car started again within our three-minute time limit, so we received no points for that event. Losing those points really hurt our chances for a high finish.

"Everybody's a little disappointed. You work so hard for an entire year on the car only to have something like that happen. We had a radiator, oil cooler and shrouded fans. That usually keeps the engine cool, but it was pretty warm and humid outside. The endurance event is pretty grueling. We really pushed the car to its limits to get good lap times. It's disappointing, but that's part of racing."

Among teams that didn't complete the endurance portion of the competition, Oakland finished in the top 10. Cornell University took first overall.

"Finishing 49th is pretty good, considering they didn't finish the endurance portion," said Brian Sangeorzan, associate professor of engineering and OU SAE faculty adviser. "We were in the top flight at that point and among the 15 fastest cars. Overall, this year we had an experienced team that had a better car and really high expectations. I know they were extremely disappointed to have the competition come down to something like a hot start problem after devoting literally every weekend to the project since last June."

Over the past three years, Oakland's team has made great strides in the competition, which is among the most intense of its kind in the world. The team finished 123rd in 2002, when it assembled a car by using whatever parts were on hand.

"That car just barely made it through the competition. We were lucky to get it running in time. They've made great progress with the vehicles since then, and the infrastructure the students have set up is remarkable," Sangeorzan said. "They've built a machine shop in the Police and Support Services Building, obtained a dynamometer to do some engine testing, designed the frame using computer engineering tools, developed other design tools for the intake and exhaust system design. One team member has also built a dedicated electronics box for the engine. I expect that we'll see that used on next year's car.

"Normally, a team makes a few incremental changes from year to year, but the progress Oakland's team has made is

extraordinary. I'm very proud of them.”

Starting next month, team members will take what they've learned from the 2004 vehicle and apply it toward designing the 2005 car. Competition vehicles must be built from scratch each year.

“I'm sure they'll start doing some design work this summer and get some people involved,” said Kolath, who will no longer be a team member after graduating in December. “We've experienced a big jump in car evolution over the past three years and did a lot of work on our infrastructure. After finishing 13th last year, we got lots of recognition and were able to establish good relations with sponsors. We've definitely seen some big improvements.”

For more information on the competition, visit the [2004 Collegiate Design Series Formula SAE](#) Web site.

SUMMARY

Despite experiencing vehicle problems during the endurance event, the Oakland University chapter of the Society of Automotive Engineers had a respectable finish at the 2004 Collegiate Design Formula SAE competition, finishing 49th out of 140 teams overall. Starting next month, team members will take what they've learned from the 2004 vehicle and apply it toward designing the 2005 car.

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