Hornet Racing Team gears up for Formula SAE competition

Anthony Melanson joined the Hornet Racing Team only last spring, but the Sacramento State junior is all in this year as the squad begins to gear up for its annual competition this summer in Lincoln, Neb.

“My main interests are design and manufacturing skills,” says Melanson, the team’s marketing lead. “I’m looking to help upgrade this year’s car with an aerodynamic package that will enable our entry to run faster and safer.”

The team’s annual budget is $50,000, raised for the most part via campus grants, sponsorships from local companies and individual donations. Melanson says the squad has to make every dollar count because the margin of error is so demanding in crafting a car that can compete against schools with far greater financial resources.

Last summer, Sac State made one of its strongest showings during the Formula SAE (Society of Automotive Engineers) international competition in Lincoln. The squad, composed mostly of engineering students, placed 19th overall and finished an impressive sixth in fuel efficiency.

“We had one of our best finishes since 2007,” says team member and chassis director Jeffrey Jackson, an Air Force veteran and junior transfer student who was participating in his first Formula SAE competition. He’s particularly proud to have placed so high in fuel efficiency, which “made ours one of the ‘greenest’ cars there. In fact, we had the most fuel-efficient four-cylinder car at the competition.”

The teams conceive, design and fabricate a Formula-style race car to SAE’s exacting standards. Each team tests a prototype based on a series of rules to ensure on-track safety and promote clever problem-solving. The point is to put classroom training into action by challenging students to design, build and test the performance of a real vehicle in a competitive environment.

The hours involved in crafting the Hornet race car are comparable to taking a five-unit class, says Melanson. In fact, West Virginia University offers such a class, bolstered by a $200,000 budget, to create its car.

“We are currently on target to achieve a running vehicle by mid-February,” Jackson says. “Right now we are finalizing designs and organizing for heavy manufacturing, which will take place during Christmas break.

“Meantime, we are starting a driver’s training program to educate members on how to safely and efficiently operate a racing vehicle.”

Staying on schedule depends, as Melanson cautions, on the team meeting its deadlines and passing the necessary inspections.

If the past is prologue, the racing team should hit its several targets. Most of the current and past design leads have had jobs and outside interests on top of their coursework and Hornet Racing.
The practical side of Sac State’s successful program is underscored by Hornet alumnus and former team member Stephanie Palmer. She was hired six months before graduation as a test engineer by Snell Memorial Foundation, where she had worked part time as a student. “Joining the racing team allowed me to learn and practice skills outside of the classroom,” Palmer says. “I was able to get a job easily because of the skills I learned while on the team.”

Don Ciobanu, who is seeking a master’s in mechanical engineering, agrees. “My time in Formula SAE presented me with challenges that are beyond the scope of most classrooms but are routinely found in the industry,” he says.

“Formula teaches students to focus on every part of the engineering process, from the early conceptual drawings through the final stages of testing and validation while requiring an exquisite attention to detail that usually separates the great cars from the merely good.

“The academic help that Formula students provide to each other is priceless.”

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