Hornet racing teams gain real-world experience

For the past two decades, dedicated groups of Sacramento State engineering students have applied their diverse skills toward creating Formula SAE race cars to compete in national collegiate events.

The development of those skills, learned in the classroom, dovetails with the University’s mission of preparing graduates for the workforce. The dozen or so students who stay the extracurricular course spend upward of 50 hours a week on the project.

This year’s students were involved with AWIM (A World in Motion), a program that brings science, technology, engineering and mathematics to life.

The team participated in this month’s Formula SAE collegiate competition in Lincoln, Neb., run by the Society of Automotive Engineers, featuring student teams from more than 250 universities worldwide that 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. Students drive the cars.

At the competition’s outset, the vehicles are checked for rule compliance. Braking ability, rollover stability and noise levels are checked before vehicles are allowed to compete in the dynamic events (Skidpad, Autocross, Acceleration and Endurance).

Sacramento State’s four-cylinder car was very competitive against a field of 80 contestants that included entries from some of the nation’s largest universities as well as from Brazil, Canada, Japan and Mexico. Despite a differential leak in the last leg of the endurance test, graduate student and business manager Stephanie Palmer says the squad’s entry made one of Sacramento State’s strongest showings, 120 points above last year.

That success flows from team continuity. Palmer has three years’ experience. Ditto for Jon Oakleaf, intake manifold lead; Terry Kay, frame and body lead; Nick Marchiano, suspension lead; and Kyle Pratt, cockpit and controls lead. Ryan Hart, driver and electrical lead, has worked seven years on professional racing teams. Dan
Ciobanu, drivetrain lead, joined the team three years ago but has built and raced cars since he was 15. All seven students are mechanical engineering majors.

“They are truly students in a class of their own, presenting their work in front of professionals in the automobile industry,” says Aki Kumagai, a professor of mechanical engineering and the team adviser. He and other faculty members periodically lend a hand with specific problems. “What they experience through this project is closest to what they will experience in the real engineering world.”

To listen to the team members describe their race car’s components is to appreciate the passion they bring to the project. These engineers are applying what they’ve learned to the creation of a finely tuned racing machine, which is why the annual competition draws all manner of companies, including General Motors, Ford and Chrysler – all looking to hire graduates whose practical experience complements their expertise.

Kay, a Sac State graduate, coordinated the AWIM team, which also mentored students at Sutter Middle School and Isador Cohen Elementary over the past two semesters. The community outreach was through AWIM and the campus-based Mathematics Engineering and Science Achievement (MESA) Center.

“We followed up recently with the kids, taking our last-year car to each of those schools and showing off what engineering is all about,” Kay says. The youngsters were especially excited to hear the engine revving.

For media assistance, contact Sacramento State’s Public Affairs office at (916) 278-6156.
– Alan Miller
amiller@csus.edu

Sacramento State is making a difference in California’s Capital Region and beyond. We offer a life-changing opportunity for our 28,000 students, preparing them to be leaders in their professions and communities. Our professors are known for their dedication to great teaching. And our location in the capital of the nation’s most populous state allows students to pursue unique internships and research.

###