



What is SAE?

The Society of Automotive Engineers (SAE) is an international engineering society established to "further develop mobility on land, in air, and in space". Included in the members of SAE are industry leaders and workers from all areas of the transportation industry, as well as thousands of college students from around the world. The Student Branch of SAE at the University of Wisconsin Platteville has established a well-structured organization, which provides many opportunities for its members to design and build on-road, off-road, and aerial vehicles for use in SAE sponsored competitions. Members learn hands-on skills, as well as effective team working strategies that will be essential to succeed in industry upon graduation. SAE at UW-Platteville has remained one of the largest and most active organizations on campus. Members engage in practical engineering, learn complex manufacturing techniques, and feel the pressure of working under deadlines and strict budgets. Best of all, members receive great satisfaction in seeing their designs make the transition from paper to working machines, which consistently finish near the top at competitions.



The Formula SAE Competition

Formula SAE is designed to give real-life engineering experience to the students involved on the team. A team of approximately 15-30 undergraduate students work together to design and build a Formula SAE car in 9 months. It may sound like an easy task to complete, but there are restrictions to the vehicle that every team must follow. Competition rules require an open wheel, formula-style construction, with that all the air entering the engine must pass through a 20mm restrictor, the size of a penny. So instead of pursuing raw power, this forces teams to find the perfect balance between precision handling and an ultra-light weight construction. There are many other aspects of a business that need to be taken into consideration when building one of these cars such as, research, testing, developing, marketing, management, and fundraising. Formula SAE allows students to take what they have been learning in the classroom and apply that knowledge to a real-life scenario. The result is a car that shows the advancements in materials and vehicle technology, which is what the future of racing is always striving toward.



Formula Judging Categories

Cars are judged in both static and dynamic events which evaluate them in categories such as handling, performance, manufacturing, serviceability, designing, cost, and endurance.

Dynamic Events

Skid Pad:

This event tests the cornering capability of the racecar. The car must travel around a figure-eight formation as fast as possible without knocking over any of the cones that outline the course.

Acceleration:

This event tests the ability for the vehicle to accelerate from rest over a 250-foot distance.

Autocross:

After being allowed to walk the course for a set amount of time, drivers must maneuver the car through the tight turns and slaloms. Any cones knocked over count as penalties. Each team is granted four attempts, of which the fastest lap time is recorded.

Endurance/Fuel Economy:

This brutal 22-kilometer race tests the limits of both car and driver. There is one mandatory stop for a driver change at the halfway point. Fuel economy is calculated and compared with other cars at the finish. Cars are not allowed to leak any fluids and only cars that cross the finish line can score any points.

Static Events

Engineering Design:

This event rates the quality of engineering design used in the development of the racecar. Judges evaluate the team's innovative ideas as well as test the reasoning and theory behind the design. During this event, vehicle test data and analysis are also scrutinized.

Cost Analysis:

Teams must submit a report detailing the total prototype cost of the vehicle and capital expenditures (labor, machinery, and tools) for a limited production run by a hypothetical manufacturing firm. Teams must also prepare their response to a hypothetical Real-Cost Scenario, such as a business plan to reduce Research and Development costs by 50% in the upcoming year.

Business Presentation:

This event evaluates the team's ability to deliver a quality technical sales presentation. The car must be marketed to a hypothetical manufacturing firm planning to produce four cars per day for a limited production run. The intended target market is the amateur weekend autocross racer.

Where Formula's Money is Spent

Because our race car is totally custom, our money is divided among the different systems and components of the car. The engine and drive train components consist of an electronically fuel injected single-cylinder motorcycle engine, a completely custom drivetrain including a limited slip differential, drive sprockets, drive chain, chain tensioning system, axels, and hubs. Each corner of the car is equipped with racing calipers and custom rotors for brakes. The wheels and tires are lightweight aluminum wheels paired with Hoosier racing slicks or rain tires. Our suspension and steering systems are all student-designed and consist of front and rear independent carbon fiber suspension, coil over springs and adjustable shocks. The body is made of carbon fiber material - essential for having a strong body that is still lightweight. The chassis is an all chrome-moly 4130 TIG welded space frame designed and manufactured by students, incorporating every system of the car. By driving the car in a large parking lot on a weekly basis, we are able to test and tune the suspension and engine prior to competition.

The UW-Platteville SAE team has had a long and successful history in providing students the opportunity to learn many of the skills necessary to succeed in industry after graduation. However, funding for such a large organization is limited, and the costs of parts, construction, and transportation is more than our organization can produce on its own. Thus, we are asking for sponsorships in the form of monetary donations, part donations, discounts, or any other type of donation your company is willing to give that would be pertinent to our success.

As a sponsor of the UW-Platteville SAE team, your company logo and link will be placed on our web page and displayed on our competition vehicles and shirts. The competitions we attend are international events. Your logo will not only be visible to people in your hometown, it will be visible to people from all over the world. In addition to company publicity, your donations will aid in the education of future engineers and designers. Students in our program are able to benefit greatly from the hands-on experience they gain from the realistic engineering opportunities these competitions offer.

Anything you can do to help us reach our goal is greatly appreciated.

Sponsor Benefits

- Tax deductible donations
- Recognition of supporting higher education
- The opportunity to present your company and product to future engineers and professionals
- Exposure to international engineering and racing elite at the annual SAE competitions
- Exposure to upcoming graduates seeking employment
- Company logo placed on the vehicles and website
- Presentations by team members demonstrating how your sponsorship has supported the development and fabrication of the car
- Invitation to view the new car before the general public

Team Performance

We are thrilled to provide a summary of Pioneer Racing's outstanding performance during the recent 2022 Competition at Michigan International Speedway. Our team demonstrated exceptional engineering prowess, dedication, and teamwork, earning accolades and showcasing our commitment to excellence in the field of automotive engineering.

Design Competition:

- Pioneer Racing showcased an innovative and well-engineered vehicle design, impressing the judges with its technical sophistication and attention to detail. PR20 was our most advanced car to date. The vehicle included lightweight carbon fiber a-arms. A seamlessly integrated data acquisition system. PR20 also included pneumatic shifting, rapid prototyped intake with converging-diverging nozzle, and lightweight fiberglass bodywork.
- Our team's design received commendation for its efficient use of team assets and optimized performance characteristics.

Acceleration and Skid Pad:

- PR20 excelled in the acceleration event, demonstrating the impressive power and responsiveness of our vehicle.
- In the skid pad event, our team showcased exceptional handling and control, achieving impressive lap times and demonstrating the effectiveness of our suspension and chassis design.

Autocross:

- PR20 displayed remarkable driving skills and vehicle performance in the autocross event, navigating the challenging course with precision and agility.
- Our team's vehicle achieved impressive lap times, reflecting the successful integration of power, handling, and stability.

Endurance Race:

- PR20 demonstrated endurance and reliability throughout the demanding endurance race, showcasing the robustness of our vehicle's design and engineering.
- Our team's vehicle completed the race with determination and minimal issues, reflecting our meticulous engineering and rigorous testing processes.

Overall Results:

UW-Platteville SAE **Sponsorship Brackets**

Diamond Sponsors: Donation valued at \$10,000 or above*

- ✓ Extra Large company logo on the vehicle in a prominent location – Medium company logo on the side of the vehicle
- ✓ Company Logo placed on team website
- ✓ Product donations are eligible to be used in case studies and be used in your company's promotional material
- ✓ Ability to showcase team vehicle at company events (time and weather permitting)
- ✓ Thank you plaque and team shirts (quantity upon request)
- ✓ Social Media recognition

Platinum Sponsors: Donation valued between \$5,000 and \$9,999

- ✓ Extra Large company logo on the vehicle in a prominent location
- ✓ Company Logo placed on team website
- ✓ Product donations are eligible to be used in case studies and be used in your company's promotional material
- ✓ Thank you plaque and team shirts (quantity upon request)
- ✓ Social Media recognition

Gold Sponsors: Donations valued between \$2,500 and \$4,999*

- ✓ Large company logo on the vehicle
- ✓ Thank you plaque
- ✓ Company Logo placed on team website
- ✓ Social Media recognition

Silver Sponsors: Donations valued between \$1,500 and \$2,499*

- ✓ Medium company logo on the side of the vehicle
- ✓ Company Logo placed on team website
- ✓ Social Media recognition

Bronze Sponsors: Donations valued between \$500 and \$1,499*

- ✓ Small company logo on the side of the vehicle
- ✓ Company logo placed on team website
- ✓ Social Media recognition

Supporters: Donations valued under \$499*

- ✓ Company logo on the team website

** Other agreements may be made on an individual basis between the team and sponsor regarding specific details that have not been outlined.*

UW-Platteville SAE **Contact Information**

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Thank you for your interest and support in Pioneer Racing!

