

**PURDUE**  
UNIVERSITY™

# Formula SAE Compendium



**2011 - 2012**



# What is Formula SAE?

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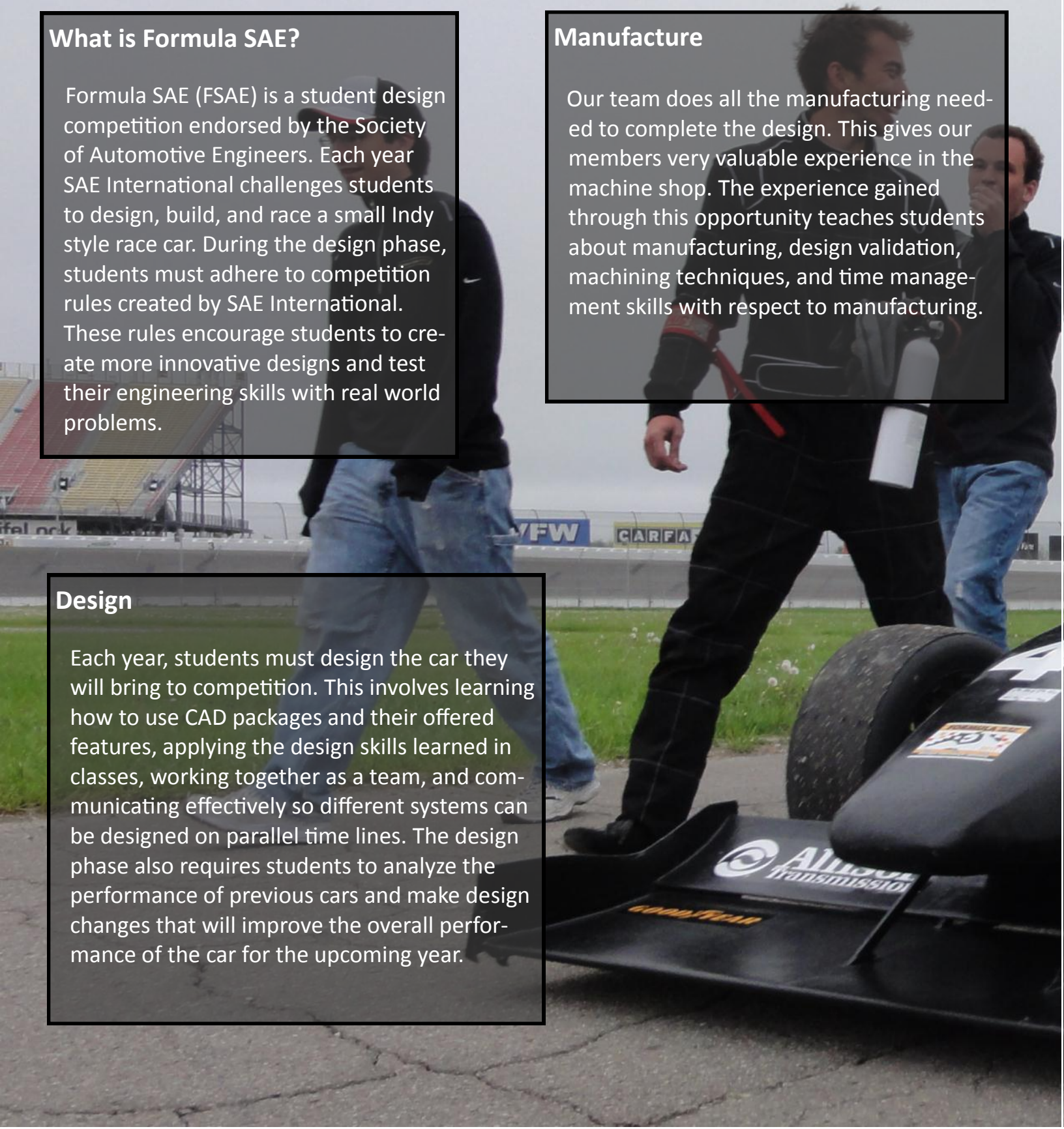
Formula SAE (FSAE) is a student design competition endorsed by the Society of Automotive Engineers. Each year SAE International challenges students to design, build, and race a small Indy style race car. During the design phase, students must adhere to competition rules created by SAE International. These rules encourage students to create more innovative designs and test their engineering skills with real world problems.

## Manufacture

Our team does all the manufacturing needed to complete the design. This gives our members very valuable experience in the machine shop. The experience gained through this opportunity teaches students about manufacturing, design validation, machining techniques, and time management skills with respect to manufacturing.

## Design

Each year, students must design the car they will bring to competition. This involves learning how to use CAD packages and their offered features, applying the design skills learned in classes, working together as a team, and communicating effectively so different systems can be designed on parallel time lines. The design phase also requires students to analyze the performance of previous cars and make design changes that will improve the overall performance of the car for the upcoming year.



## Testing

Once the car has been completely assembled, our team tests the car. The testing done before competition allows us the team to see what changes need to be made to the car and what can be improved upon to yield better results at competition. Testing also allows our team to gain knowledge about how the car performs and how it needs to be taken care of for optimal performance at competition.

## International Competition

This year, competitions will be held in Michigan and California as well as abroad. These competitions lure in teams from universities all over the world, as well as students, spectators, industry professionals, and businesses from a range of different industries. Designs are scored by industry professionals based on three static events and four dynamic events.

## Vehicle Specifications

### Performance

- 0 - 60 in 3.5 sec
- 1.55 G Lateral Acceleration

### Specifications

- 468 lbs.
- 600cc Honda Fi4 Engine
- 6 - Speed Transmission
- Pull rod Activated Suspension

## Purdue FSAE Strengths and Skills:

Members of our team have experience with and work actively in the following areas:

- ◆ Leadership
- ◆ Project Management
- ◆ Time Management
- ◆ Technical Knowledge and Skill
- ◆ Design Creation and Analysis
- ◆ Computer Modeling and Manufacturing (CAD and CAM)
- ◆ Machining Skills (Lathe, Mill, Hand Tools, CNC, etc.)





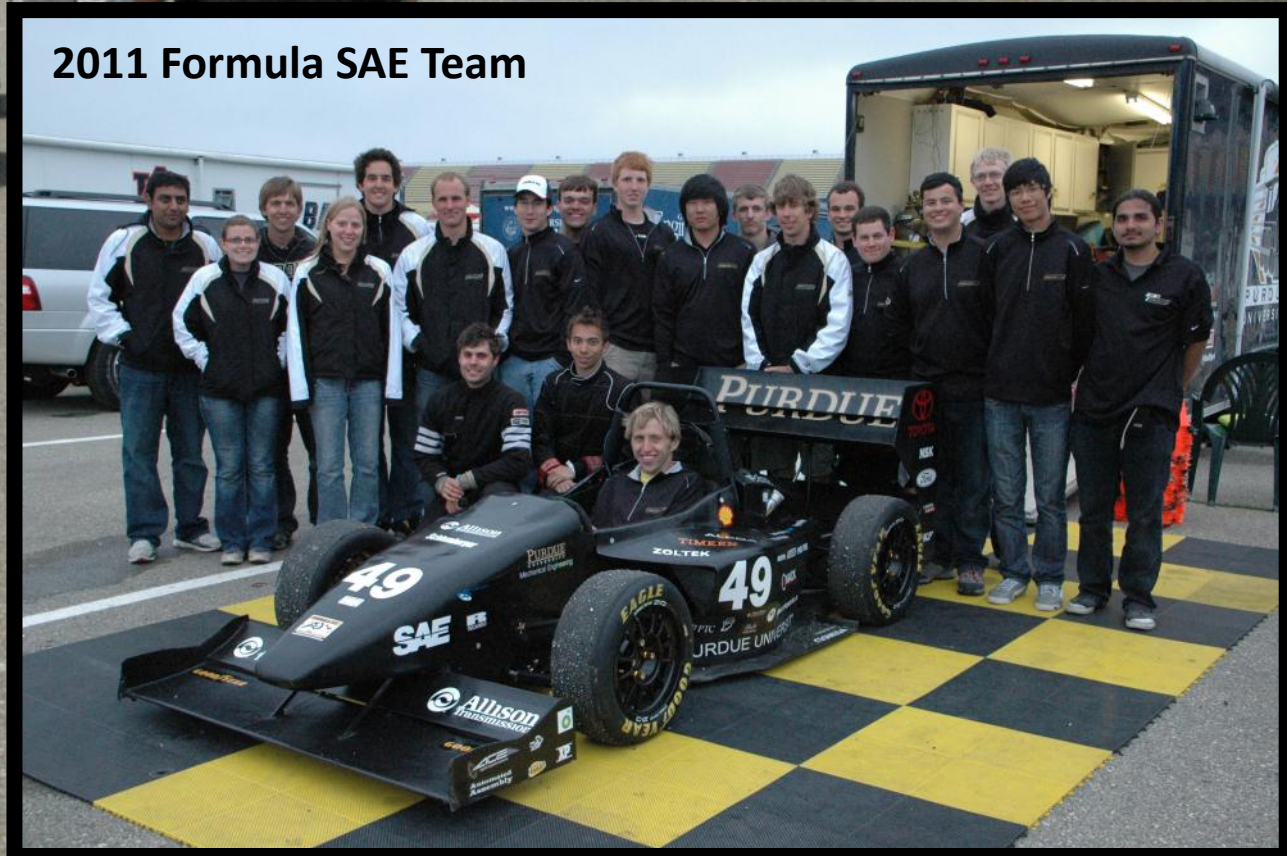
# About Our Team

## Our Team

Purdue University is recognized worldwide for its excellent engineering program. Members of the Purdue FSAE team create a well-designed car each year by combining the theory learned in class with hands-on skills. Students utilize engineering skills and state of the art tools to design and verify the new car. Our team is comprised of mechanical engineering students as well as students from other disciplines.



## 2011 Formula SAE Team





## Our History



### Brief Purdue FSAE History:

- ◆ 2011 FSAE East Competition, 12th Overall
- ◆ 2009 FSAE East Competition, 4th Overall
- ◆ 2008 FSAE East Competition, 5th in Design
- ◆ 2007 FSAE West Competition, 4th Overall

## History

The Purdue Formula SAE team history began in 1992. Since its start, the team has worked to evolve and create a strong presence at competition each year. Each year, our team's main goal is to improve upon the performance from the years before. Old designs are critiqued and improved upon and past challenges are overcome and turned into strengths.



2007



2008



2009

## Competition

The Formula SAE competition is designed to test each team's design and knowledge of various aspects of vehicle design and manufacture. Each year, our car is rigorously tested during dynamic events which test drivability, reliability, and the overall performance of the car. The car is also presented to judges who critique the design and manufacturing work and give the team guidance and advice. These critiques help our team figure out what needs to be improved upon for the next year.

## Teamwork

The Purdue Formula SAE team is a team above everything else. This team spends an enormous amount of time together throughout the school year which helps to build trust and helps the team work together effectively. We work together to find new ways to combine our wide array of engineering talents and experiences to build and design a unique race car.







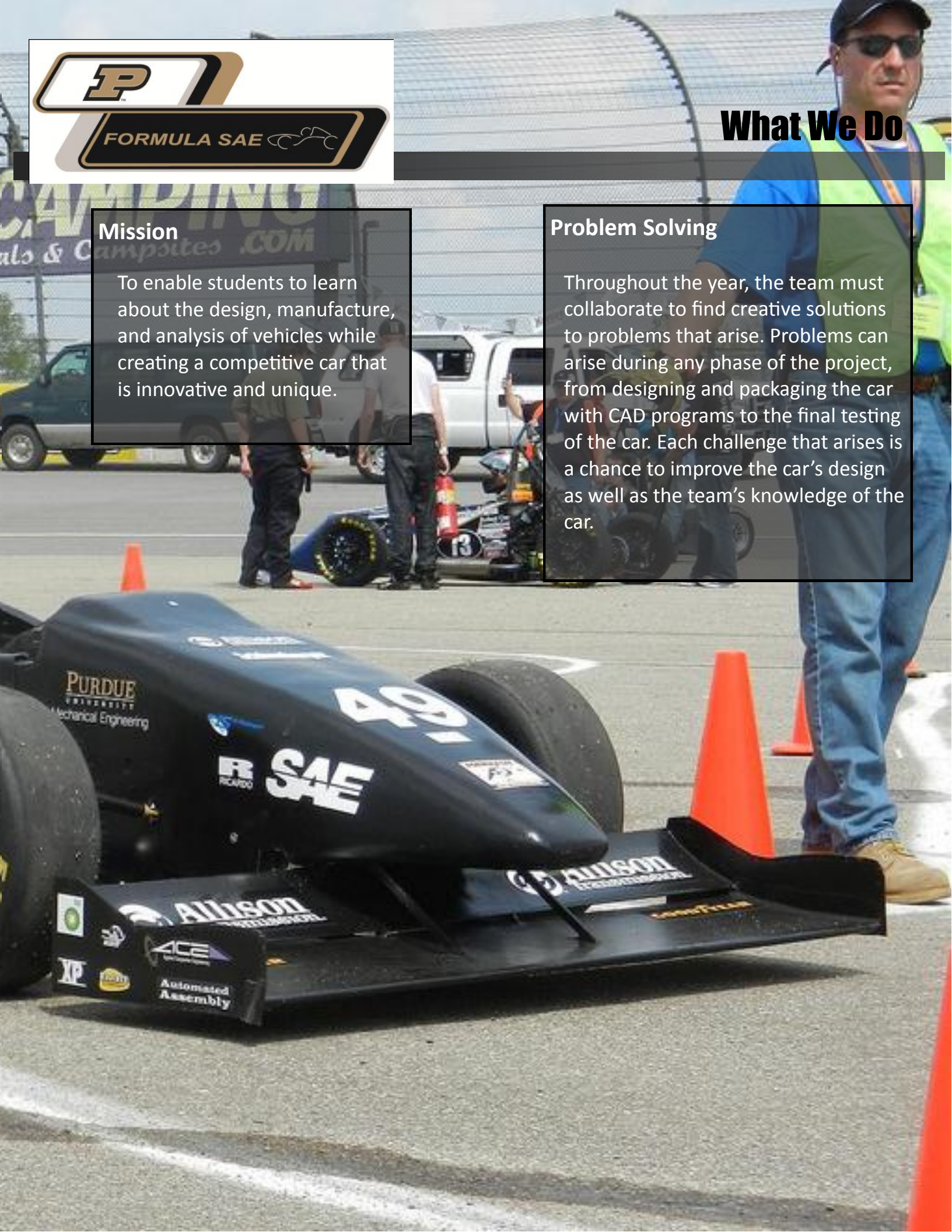
## What We Do

### Mission

To enable students to learn about the design, manufacture, and analysis of vehicles while creating a competitive car that is innovative and unique.

### Problem Solving

Throughout the year, the team must collaborate to find creative solutions to problems that arise. Problems can arise during any phase of the project, from designing and packaging the car with CAD programs to the final testing of the car. Each challenge that arises is a chance to improve the car's design as well as the team's knowledge of the car.





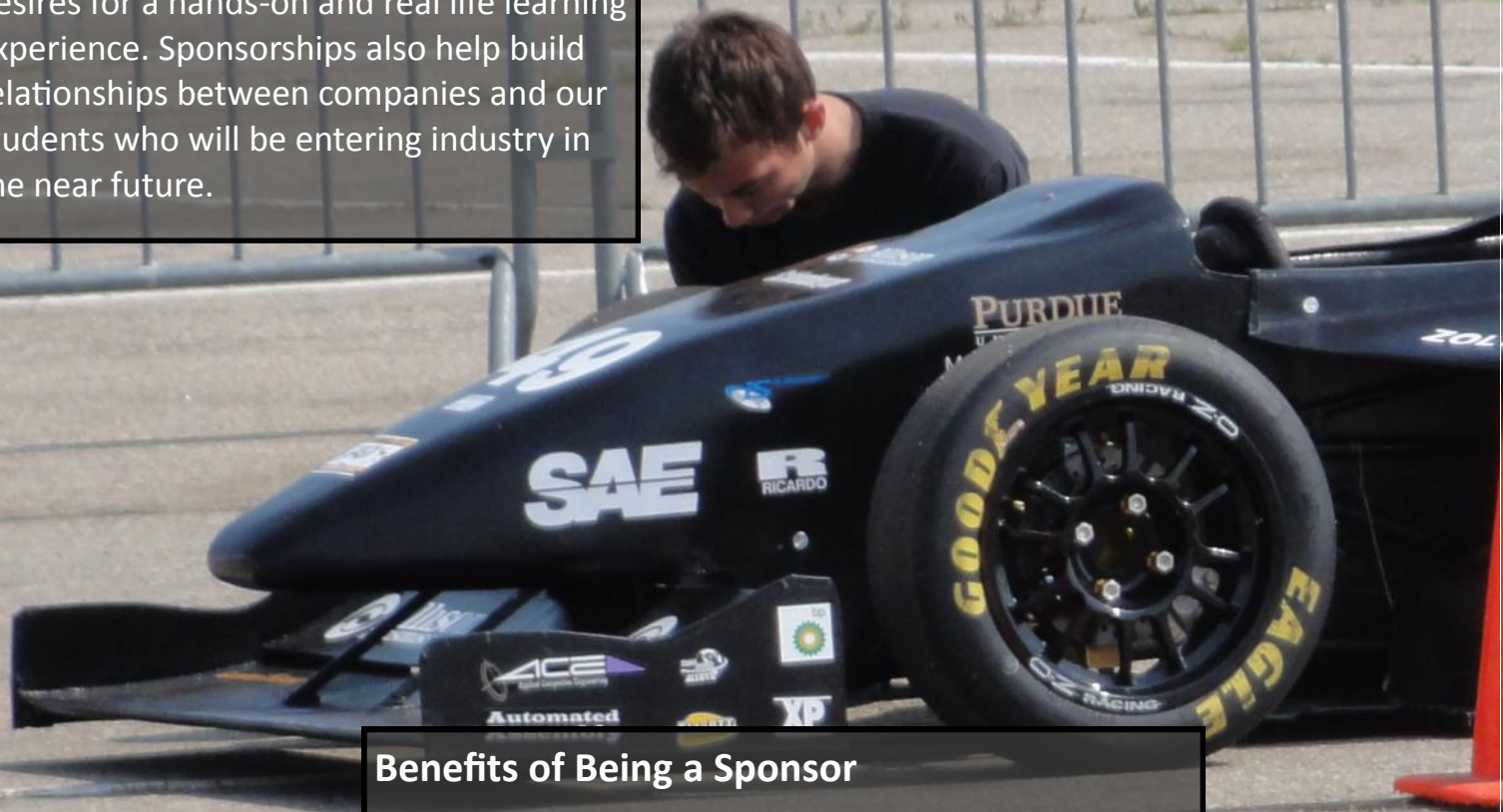
## Become A Sponsor

### What Sponsorship Means To Our Team

Sponsorship with Purdue University FSAE means that your company supports our program and goals. Through donations of time, parts, material, equipment, or funds, your company is supporting our students' desires for a hands-on and real life learning experience. Sponsorships also help build relationships between companies and our students who will be entering industry in the near future.

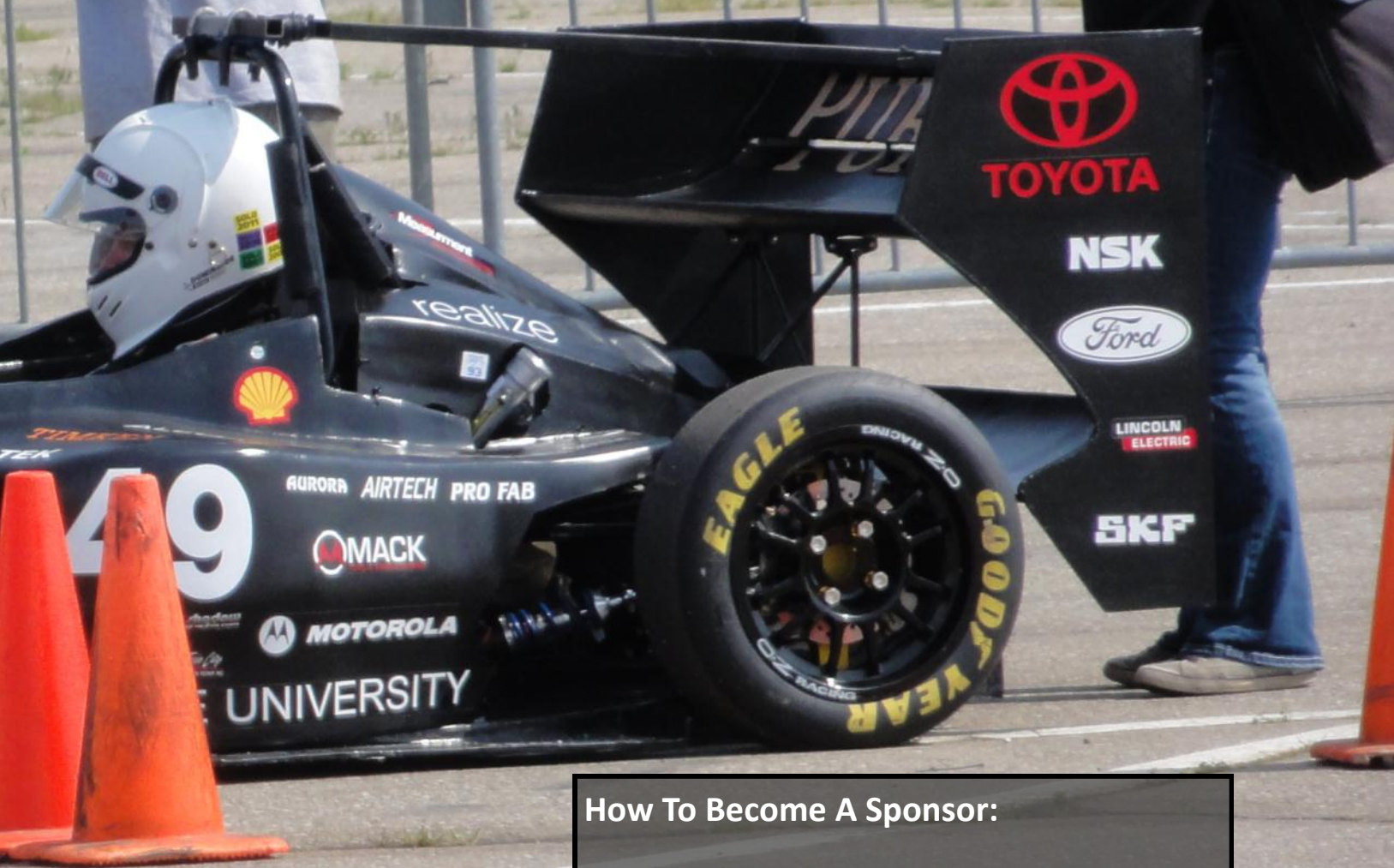
### Benefits of Being a Sponsor

As our sponsor, your company will receive recruiting and advertising benefits. All of our sponsors have access to our members for recruitment. You will have the option of using the team email list, visiting the shop, or speaking at a meeting. Your company will also be able to reach other audiences by placing your company's logo on our website and car. Gold and Titanium level sponsors are also able to use team photos and videos in advertisements.



## Why We Need Sponsors

The Purdue Formula SAE car is completely student designed and built. Therefore, it is required that the students also obtain the funding for this project. The budget for a Formula SAE car can range between \$30,000 and \$40,000 per year, due to design and material changes. We must receive funding each year to purchase the materials and supplies needed to meet our design standards and competitive nature.



## How To Become A Sponsor:

- ◆ Contact Purdue FSAE to discuss the type of donation you would like to make
- ◆ Ask us about the opportunities we have for companies to be involved with our team
- ◆ Make your donation by mailing a check to the address on the back of this packet, or by contacting us to arrange a time to meet regarding parts, material or time donations





# Levels of Sponsorship

## Contribution Levels

Any level of sponsorship is greatly appreciated by our team. The sponsorship levels are shown below with the benefits that each level of sponsorship receives. All of our sponsors are welcome in the shop so you can see the difference your donation has made to our team.

## Benefits Of Being A Sponsor:

- ◆ Access to recruit our team members through our email list
- ◆ Visitation of our shop during any normal operating hours, contact us for more details
- ◆ Presentation time at our team meetings to recruit for employment
- ◆ Gold and Titanium Level: Use of team videos and photographs

CONTRIBUTION OR EQUIVALENT VALUE	\$0 — \$249	\$250 — \$2,999	\$3000 — \$7,499	\$7,500 — \$11,999	\$12,000 +
SPONSOR LEVEL	PATRON	BRONZE	SILVER	GOLD	TITANIUM
<b>EMPLOYMENT RECRUITING OPPORTUNITIES</b>					
ACCESS TO TEAM RECRUITMENT EMAIL					
ACCESS TO VISIT SHOP					
ACCESS TO PRESENT AT TEAM MEETINGS					
<b>ADVERTISEMENT OPPORTUNITIES</b>					
WEBSITE LOGO DISPLAY					
SMALL COMPANY LOGO ON CAR					
MEDIUM COMPANY LOGO ON CAR					
LARGE COMPANY LOGO ON CAR					
TEAM AND CAR FOOTAGE ACCESS					
CENTRAL AREA ON CAR					
T-SHIRT LOGO DISPLAY					



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