



Formula SAE Team Sponsorship Proposal and Funding Request 08/27/2009

To: Prospective Sponsor

From: Wade Harvey, Formula SAE Marketing Team Leader

Subject: Request for Ware Lab Project Support

Project Name: Formula SAE

Faculty Advisor: Srinath Ekkad, Ph.D., Department of Mechanical Engineering
Robert West, Ph.D.; Department of Mechanical Engineering
John Ferris, Ph.D., Department of Mechanical Engineering

Tentative Budget: \$58,400

Funding Request Summary

The Virginia Tech Formula SAE senior design project is requesting support for the 2009-2010 year. The Formula SAE series is a competition sponsored by the Society of Automotive Engineers which charges design teams with building a car that competes in a wide range of autocross style race events. This international competition will take place in May at the Michigan International Speedway.

Student Participation Summary

The 2009-2010 Formula SAE team consists of two smaller teams of mechanical engineering students. The Maroon Team is a group of 17 seniors enrolled in the ME 4015 Capstone Design course. They are currently working on fabricating and testing a car that was designed during their junior year. The Orange Team consists of several junior undergraduate students earning independent study credit; they are currently working on the design of the 2011 car which they will build the following year. The team at the 2009 MIS competition is shown in Figure 1. There are also several more underclassmen volunteers whose goal is to learn the basics of the team and begin to formulate new ideas for the year they will be designing their component on the car. It is important for all student levels to be involved to effectively transfer knowledge down from the seniors.



Figure 1. The team at the 2009 Michigan Competition.



Proposal of Activities

Due to the consistently large scale and high performance aspect of this project, fundraising has always been a major focus of the team. Without the continued support of team sponsors and the generous donations they provide, the team would not be able to remain competitive year to year. It is the goal of the team to place in the top ten at competition every year. Last April, the team attended SAE's first VIR competition in Danville, Virginia and the annual MIS competition in Brooklyn, Michigan. They placed 9th out of 24 teams at VIR, taking 3rd place in design, 4th place in acceleration, and 6th place in autocross. The team placed 28th out of 98 teams at MIS, taking 12th in design, 10th in presentation, and 13th in autocross. This success has inspired the 2010 team to compete at a higher level. This year, the team strives to place in the top 10 overall and make it to the final round in the design competition.

One of the reasons why the team continues to grow and be successful is because of the change to a two year design cycle. A few years ago, the Formula SAE program became one of the only two year design projects in the mechanical engineering department at Virginia Tech. This has led to more success due to the added time for design, fabrication, and testing for each year's team. Currently the team is working diligently to have more underclassmen involved at the freshmen and sophomore level with the intention to form the Orange Team earlier in the year. Building the Orange Team earlier in the semester will allow more time to analyze and validate designs as well as increase knowledge transfer. Although early participation promotes a stronger design it also places a financial burden on the team. Increased participation requires additional project and research materials to be purchased.

Budget

Similar to past years, the total projected costs for the 2010 VT Formula SAE car are high in order for the team to excel at competition in both design and performance. Total projected 2010-2011 VT FSAE expenditures is shown in Table 1. Due to budget cuts within the Mechanical Engineering Department, the level of funding to the VT FSAE program has been reduced and a stronger emphasis has been placed on fundraising. Fundraising and sponsorship has always been an important part of the VT FSAE program. The team has made important moves to push the fundraising program forward. Improvements include a sponsorship database, more focus on future team progress, and increased sponsor interaction through newsletters and a yearly sponsor event. This is an on going process and the team is excited about expanding our opportunities to work with companies and professionals. The goal for 2010 is to raise a minimum of \$55,000 to make up for a potential budget cut from the department.



	Part	Cost
Suspension Subteam	Front Uprights	\$300.00
	Rear Uprights	\$300.00
	Steering	\$600.00
	Chassis	\$2,500.00
	Bell Cranks	\$500.00
	Springs/Dampers	\$2,500.00
	Body/Seat	\$6,000.00
	ARB's	\$100.00
Drivetrain Subteam	Hubs	\$800.00
	Wheels	\$2,500.00
	Shifting	\$400.00
	Brakes	\$1,200.00
	Bearing Blocks	\$600.00
	Differential	\$1,000.00
	Halfshafts	\$2,500.00
	CV Stubs	\$1,600.00
Engine Subteam	Oil	\$1,000.00
	Engine/MoTec	\$10,000.00
	Electrical	\$2,500.00
	Intake	\$600.00
	Restrictor	\$200.00
	Throttle	\$150.00
	Fuel	\$900.00
	Exhaust	\$800.00
Misc. Expenses	Driving Equipment	\$650.00
	Tooling Consumables	\$1,000.00
	Office Supplies	\$200.00
	MIS Registration	\$2,000.00
	Travel	\$15,000.00
	Total	\$58,400.00

Table 1. VT Formula SAE 2008-2009 Projected Expenditures