



GO BLUE.

DRIVE GREEN.



MICHIGAN HYBRID RACING

2017 SPONSORSHIP PACKET





Dear Mentors and Colleagues,

Hello! We are so excited to be the captains of the Michigan Hybrid Racing team this year. We both joined this team as freshmen because we were attracted to the comprehensive multidisciplinary experience that this team provides. Michigan Hybrid Racing strives to promote mentorship and camaraderie between upperclassmen and new students, and to encourage the pursuit of additional engineering knowledge and experiences to supplement students' classroom studies. The open, cost-free, and merit based environment encourages students to branch outside of their major and learn about areas to which they would otherwise not have exposure.

The Formula Hybrid SAE competition pitches us against nearly 30 teams, from across the world, in static and dynamic events. This provides a rich forum for developing exciting new ideas and exploring the new technologies in the dynamic field of hybrid vehicles. Last year, we had a great experience designing, building, and testing our car. Our main accomplishments were implementing a team-designed and built high voltage battery pack, and the addition of many mechatronics systems, including electric clutch, shifting, and throttle control. This year, our innovations will include transitioning from a rear-wheel drivetrain to a four-wheel drivetrain with the addition of in-hub motors in the front wheels, as well as the development of an aerodynamics package.

Our team is dependent on our corporate and university sponsors to be able to build a competitive racing machine year after year. All of the materials and resources used by our team members are generous gifts that provide invaluable real-world experience. Through the contributions we receive, students are transformed into leaders and innovators able to work well in a team environment and successfully execute complex multidisciplinary projects. In return, our sponsors have access to one of the most talented and knowledgeable recruiting pools at the University of Michigan. We are ever grateful to our partners for making Michigan Hybrid Racing possible.

Go Blue, Drive Green,

Brandon Hoffman and Gabrielle Zacks
2017 Race Year Co-Captains



BASICS

Michigan Hybrid Racing is a faculty-sponsored student design team at the University of Michigan College of Engineering. It is supported by the university, and convened under the auspices of the Society of Automotive Engineers (SAE) and the Institute of Electrical and Electronics Engineers (IEEE), who organize and regulate the Formula Hybrid Competition.

TO BUILD A RACECAR

Michigan Hybrid Racing constructs a mini-Formula hybrid racecar each year. The car is similar in concept to a traditional Formula-1 car, but overall a much smaller build. Teams wishing to compete at the Formula Hybrid Competition, for instance, are limited to a 300 Volt tractive electrical system and a 250cc internal combustion engine. This platform is of the perfect size and scope for a student automotive team.

OUR PURPOSE

Nicknamed 'MHybrid' by its members, this team exists to serve the needs of Michigan engineering students looking to learn beyond the classroom. Through the one year design-build-test cycle, members slake their thirst by learning technical skills along with a healthy dose of project management. The ultimate opportunity for achievement lies in several coveted, elected leadership positions, where dedicated students take the reins of a division and experience leadership simulated at the corporate level of an engineering firm. The founders chose the Formula Hybrid platform in particular for its interdisciplinary and environmentally-optimistic nature.

FINANCE

Along with passionate, active members to construct the car, Michigan Hybrid Racing needs yearly financial support to cover materials, running expenses, and competition fees. **This support comes wholly through donations from many sponsors, including the University itself.**

THE PROCESS

Raw resources, money and hard-working students, are transformed into a racecar through several steps. First, a concept is forged over the summer design season. Then, the design is refined and presented to current members and alumni in the fall. If the design passes inspection, production begins at the Wilson Student Team Project Center, and on-campus workshop. Students weld, mill, turn, and tool most components in house. The electrical team is hard at work, too, fabricating the car's circuitry and electrical containment to rigorous safety standards.

TESTING AND COMPETITION

After the car is built and ceremonially unveiled at the end of Winter, testing begins in earnest. Members work in a frenzy to ensure the car is ready for SAE's rigorous inspections. The post-production phase culminates in the **Formula Hybrid Competition** in early May. Hosted at the New Hampshire International Speedway, more than 30 teams from different universities all over the world gather to determine whose design came out on top. This is done through several races and a design inspection by professionals.



COMPETITION

The paddocks at the New Hampshire International Speedway are accustomed to hosting professional racing teams from across the world. In early May, their doors open to a different breed of racecar. Over the course of a week, Formula Hybrid student teams get a chance to see their creations in action, and to demolish their rivals on the track.

RACE EVENTS

What is a racecar without its race? The creators of the Formula Hybrid Competition challenge teams to excel in three uniquely challenging automotive disciplines.

The Acceleration Event: The ultimate display of the car's power and control. Each driver accelerates from stop and a time-to-distance is recorded.

The Autocross: An overall test of both performance engineering knowledge, and the effects of critical design decisions. Cars race each other on the clock on a customized, technical road course.

The Endurance Event: Perhaps the differentiator of the competition, the Endurance tests equally the car's durability and efficiency. Each team is challenged to go the farthest on a single tank of fuel.

SAFETY AND PROFESSIONALISM

Each team member is excited to see the car tearing up the oval on its way to the road course. However, the race crew faces its greatest challenge simply getting to the start line. Because the primary goal is to foster good engineering, each team must pass a rigorous set of inspections and technical tests over a three day period. It can take an entire workday just to pass the electrical inspection!

Aside from placement overall and in each race, teams can be awarded for their accomplishment throughout the year. Judges, professionals in the automotive design field, announce the best designs and the best-managed projects.



MHR-16 tears up the Yellow Lot on a spring testing day

THE WILSON CENTER

The University of Michigan has created a home for student teams like MHybrid at the **Wilson Student Team Project Center**, affectionately abbreviated the ‘Wilson.’ Although it is vast, the workshop has become packed with student teams. The Wilson is a community as much as it is a workspace. Teams banter and borrow tools, and during the school year a candle is almost always burning somewhere, be it one of the team areas, the machine shop, various small shops and offices, or above the shop floor in the shop computer lab.

The Wilson Center is operated by a cooperative student and employee staff dedicated to professionalism. Each student is trained in shop safety and basic tool operation before they can even enter the building. The staff is also there to advise on projects and keep the shop in top operating condition.

Wilson Center resources include:

- Metal Mills and Lathes**
- TiG Welders**
- CNC Router**
- Electrical Testing Equipment**
- Paint Booth**
- Basic Metalworking Tools**
- A Dedicated Team Workspace**



Installing the fuel tank



Stress-relieving the chassis

TEAM CULTURE

MHybrid strives to focus on its members’ education. Tryouts are nonexistent, and each division offers work to those with little or no field experience on a weekly basis during the fall and winter. While encouraged in this way to step forward regardless of achievement, members are also rewarded for their successes with design projects, leadership roles, and a place on the Race Crew.

Members are split into divisions to tackle major design areas: Internal Combustion Engine Powertrain, Electric Vehicle Powertrain, Aerodynamics, Human-Machine Interface, Vehicle Dynamics & Chassis, and Business. The divisions come together on team workdays to share intellect and integrate their systems.

The team comes together for the engineering community too. MHybrid actively pursues outreach opportunities, especially regarding engineering education. The team looks to increase its involvement this year.

(Right, bottom) Promoting engineering at Girls Researching Engineering and Technology (GREAT) day.





SPONSOR RELATIONSHIPS

Operating purely on educational interest, Michigan Hybrid Racing needs sponsors to survive and thrive. But sponsorship with Hybrid is more than a check, a handshake, and a logo. We enjoy connecting with and learning from sponsors, and seek a mutually-beneficial relationship. A sponsorship with Michigan Hybrid Racing is value added to any company.

The typical sponsorship arrangement lasts one year, ending after the Formula Hybrid Competition in May. In that time, opportunity abounds on both sides.

BENEFITS TO THE TEAM

Crucial funding. MHybrid depends on sponsors' monetary donations. Only 25% of the team's yearly budget is covered by the university, which behaves as another sponsor. The team uses donated money to buy materials and parts, pay for competition, among a myriad other expenses.

Material and resource support. In addition to money, MHybrid often seeks alternative help from its sponsors, such as parts, materials, or even access to facilities. This is a great way sponsors can share their strengths and donate efficiently.

Intellectual support. Despite our drive and our passion for our fields, we're still students. Members reach out to sponsors when trying to solve a problem beyond their knowledge—often bringing them and company representatives together.

As donations to a registered 501(c)(3) non-profit organization, all money or in-kind donations to Michigan Hybrid Racing are 100% tax deductible.

BENEFITS TO YOUR COMPANY

Various sponsorship rewards, enumerated on the next page. These items are awarded due to the monetary value of total yearly donations to Michigan Hybrid Racing.

A concentrated, specialized talent pool to connect with year-round. Many members have found internships and jobs with our sponsors.

A foothold in the Michigan Engineering community. The Wilson Student Team Project Center alone is home to many engineering teams, with 300+ active members.

A reputation as a benefactor and supporter of engineering education. This is more than a passive benefit. Striving to interact more with the engineering community at large, MHybrid wishes to help local engineering education organizations. Sponsors can be a visible part of such ventures.

The sky's the limit! We're interested to hear about any mutually beneficial projects your company may have in mind.



SPONSORSHIP REWARDS

Michigan Hybrid Racing is completely sponsor funded. To create mutual relationship with sponsors and to give back, we have established a tiered payback system.

PLATINUM: \$15,000+

Benefits include "Gold" and:

- Large logo displayed prominently on vehicle, apparel, and newsletter
- Logo and company profile displayed on team website
- Use of the car for corporate display for up to one week upon request
- Ability to provide banner with logo for all team events, including competitions, and the Wilson Student Team Project Center
- Scheduled recruitment event with the team

GOLD: \$5,000-\$14,999

Benefits include "Silver" and:

- Medium logo displayed on vehicle, apparel, website, and newsletter
- Use of the car for corporate display for one day upon request
- Ability to provide banner with logo for Wilson Student Team Project Center
- One information session per semester
- Team t-shirts upon request
- Invitation to team testing days
- Company photo shoot with car at Wilson Student Team Project Center

SILVER: \$1500-\$4,999

Benefits include "Bronze" and:

- Small logo displayed on vehicle, apparel, website, and newsletter
- Recruiting access and resume book
- Team poster

BRONZE: \$0-\$1,499

- Small logo displayed on website
- Access to and recognition in monthly newsletter
- Tour of Wilson Student Team Project Center upon request
- Invitation to unveiling event
- Team photo



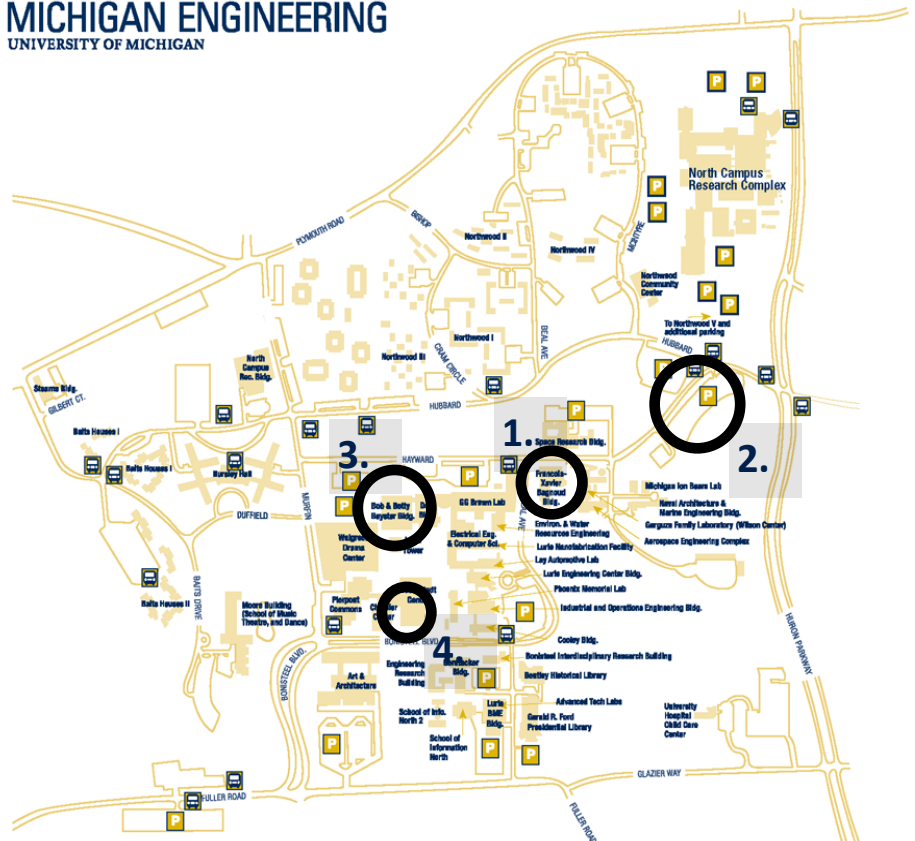


2016-2017 EVENT SCHEDULE*

DATE/TIME	EVENT	LOCATION
9/5/16 11 am-2 pm	Northfest Engineering Student Club Fair	Murfin Ave. and Bonisteel Blvd., UM North Campus
9/9/16 3 pm-7 pm	Festifall Campus-wide Student Club Fair	UM Central Campus Diag
9/19-9/20/16 10 am– 4 pm	SWE/TBP Fall Engineering Career Fair at UM	Various Engineering Campus Buildings
9/25-10/29/16 TBD	Internal System Design Reviews	TBD
1/24-1/25/16 TBD	Winter Engineering Career Fair	Various Engineering Campus Buildings
Feb 2017 TBD	MHR17 Unveiling	TBD
May 2017	Formula Hybrid Competition	New Hampshire International Speedway

IMPORTANT LOCATIONS ON THE MICHIGAN ENGINEERING CAMPUS

1. The Wilson Student Team Project Center (WSTPC)
2. The Yellow Lot (Testing Area)
3. The Bob and Betty Beyster Building (BBB)
4. Cheseborough Auditorium (inside the Chrysler Building)



**This schedule is preliminary and subject to change. A firm schedule will be available soon!*



MHR-16 Race Crew at the New Hampshire International Speedway in May 2016

WE CAN'T WAIT TO WORK WITH YOU!

We hope this packet has answered your questions and gotten you excited about sponsoring Michigan Hybrid Racing. If you have more questions, or are ready to discuss a partnership, talk to your internal contact, or call or email Colin Wagner below.

Get ready to Go Blue and Drive Green!

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