



***BAJA
RACING***

**INFORMATION
BOOKLET**



MICHIGAN ENGINEERING
UNIVERSITY OF MICHIGAN



THE TEAM



For 27 continuous years, Michigan SAE Baja Racing has competed in national competitions that challenge student teams to design, build, and race a single-seat off-road vehicle. All class levels are represented, from freshmen to graduate students. Participating on such a team helps students develop valuable real-world skills such as time and project management, communication, teamwork, and practical engineering. These skills give them a competitive advantage when entering the workforce.

THE 2016 CAR: MBR-27

Frame:

4130 Chromoly
steel tube roll
cage

Panels:

Custom carbon
fiber layups

Engine:

Briggs & Stratton
Intek Model 20

Brakes:

Custom rotors
Front: Custom
calipers
Rear: Wilwood
PS1 caliper

Suspension:

Front: Dual A-arm,
custom corner
assemblies
Rear: Trailing Link
with single
camber link per
side

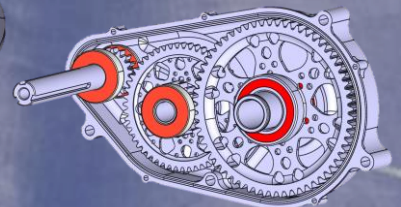
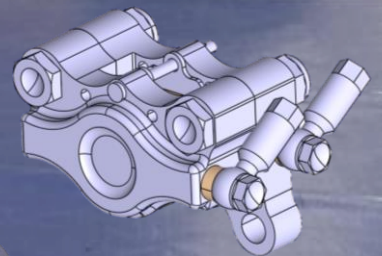
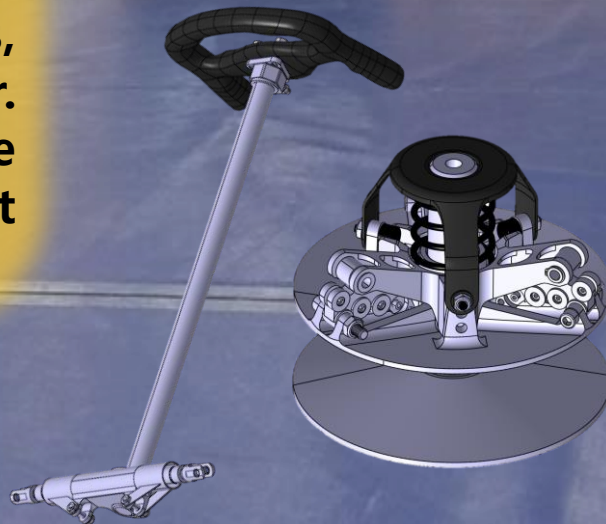
Drivetrain:

Entirely custom
continuously
variable
transmission,
single-speed
gearbox, &
axially-stressed
driveshaft

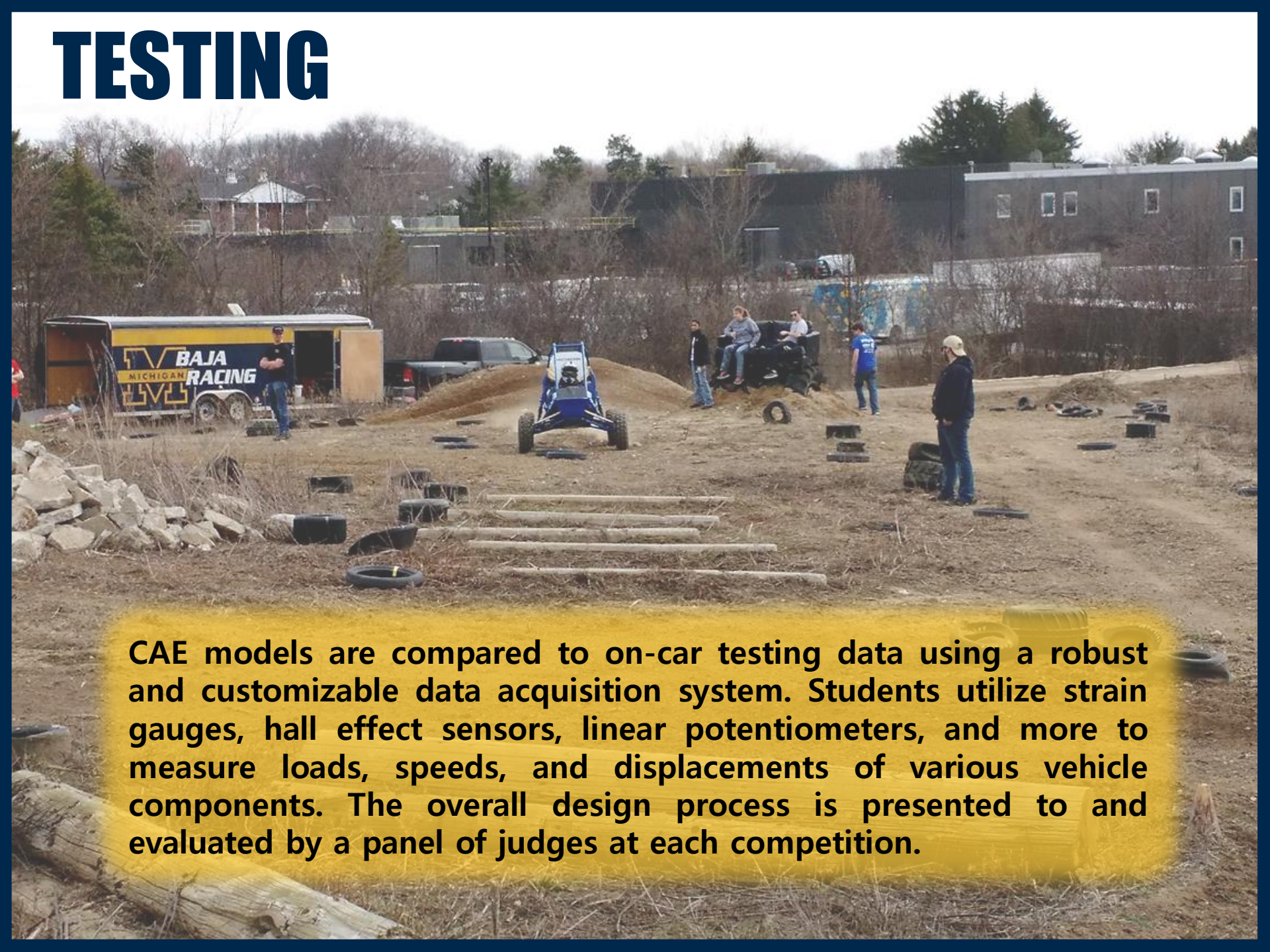


DESIGN

To design the vehicle, the team uses a powerful and versatile library of Computer Aided Engineering software. The team approaches design as an iterative process which includes component and system integration, manufacturing, and testing. The car is broken down into numerous subsystems, each having a lead engineer. This approach gives a valuable experience in both component and overall system design.



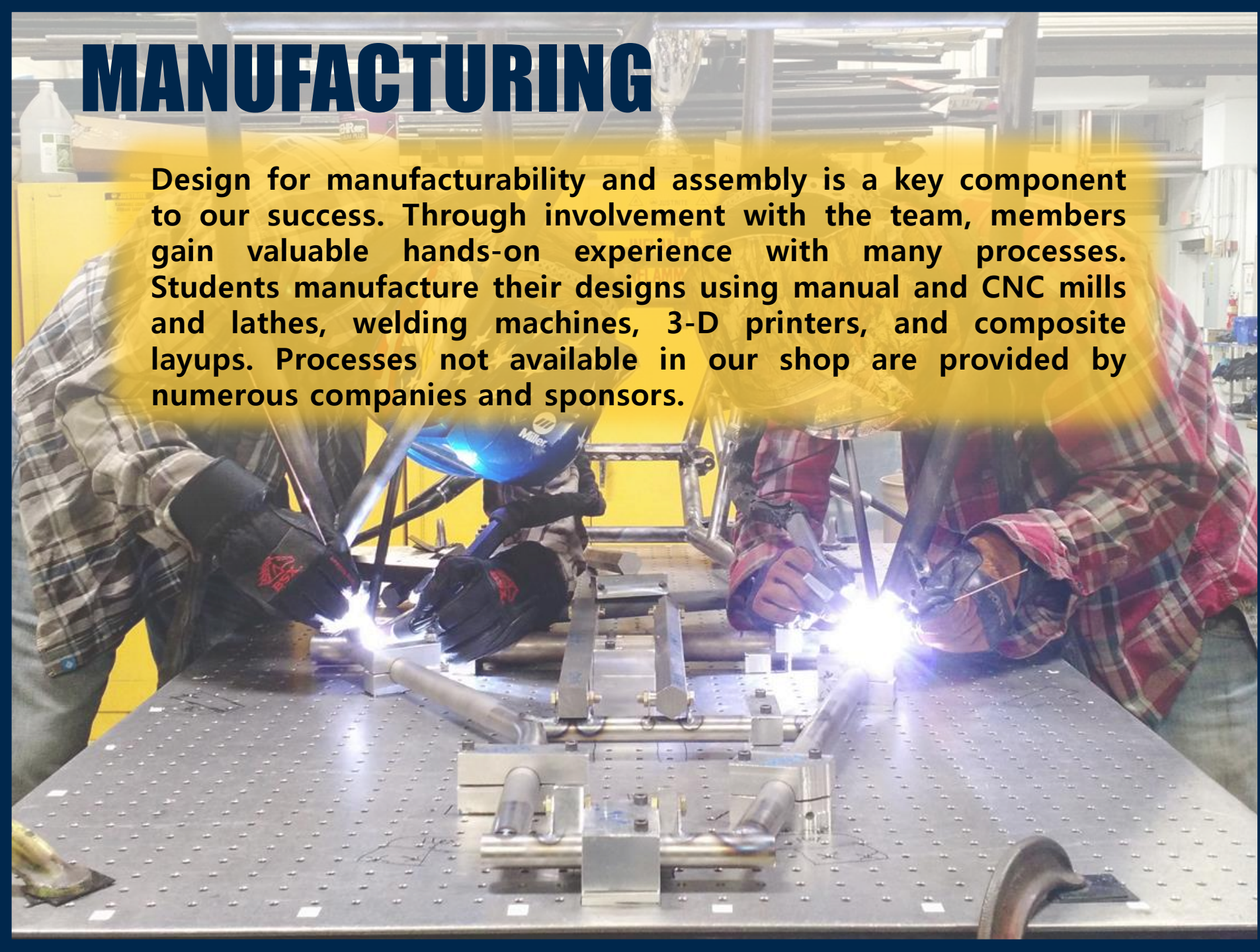
TESTING



CAE models are compared to on-car testing data using a robust and customizable data acquisition system. Students utilize strain gauges, hall effect sensors, linear potentiometers, and more to measure loads, speeds, and displacements of various vehicle components. The overall design process is presented to and evaluated by a panel of judges at each competition.

MANUFACTURING

Design for manufacturability and assembly is a key component to our success. Through involvement with the team, members gain valuable hands-on experience with many processes. Students manufacture their designs using manual and CNC mills and lathes, welding machines, 3-D printers, and composite layups. Processes not available in our shop are provided by numerous companies and sponsors.



COMPETITIONS

Every year the team travels to all three North American competitions located across the country. The 2016 events were held in Cookeville, TN; Gorman, CA; and Rochester, NY. Universities from across the U.S. and around the world compete in the grueling three day competition. Competitions provide the opportunity to compare our design with this diverse field of competitors.



- Day 0** Briggs & Stratton engine inspection, sales presentation
- Day 1** Static Day: technical inspection, brake check, design review with industry professionals, cost audit
- Day 2** Dynamic Day: acceleration, maneuverability, suspension & traction or rock crawl, hill climb or sled pull
- Day 3** Endurance Day: a grueling four hour wheel-to-wheel race with up to one hundred vehicles

RESULTS

1st Place

Mike Schmidt Memorial Award

Acknowledging the team with the highest cumulative score from all three North American competitions



Gorman, CA

May 19-22

1st Overall
1st Acceleration
1st Hill Climb
1st Design
1st Maneuverability
1st Cost
2nd Endurance
3rd Sales

Rochester, NY

June 9-12

1st Overall
1st Acceleration
1st Hill Climb
1st Design
1st Endurance
2nd Cost
3rd Maneuverability
3rd Sales

Cookeville, TN

April 14-17

4th Overall
1st Acceleration
1st Design
2nd Maneuverability
2nd Cost
3rd Sales

SPONSORSHIP BENEFITS

A blue and yellow race car, likely a Baja car, is shown from a low angle. The car features numerous sponsor logos, including Toyota, GM, Ford, and many smaller ones like PTG, nexteer, and NSK. The text "MICHIGAN ENGINEERING" and "UNIVERSITY OF MICHIGAN" is visible on the side of the car.

Interaction with the Engineers and Leaders of Tomorrow

Michigan Baja Racing challenges our members to go beyond the classroom by thinking creatively and developing time management, communication, and leadership skills. This gives Michigan Baja Racing members a valuable experience that prepares them for work at industry-leading companies. Supporting Michigan Baja Racing provides sponsors with a unique opportunity to not only foster the development of tomorrow's engineers but also recruit them for future employment.

Sponsor Publicity

Michigan Baja Racing proudly recognizes our sponsors with a logo on our car as well as a logo and link on our web page. Please see the table on the next page for further details.

Team Appreciation

All sponsors receive a team photo and video recap of the race season as a thank-you for their support.

Tax Deductions

Michigan Baja Racing is a non-profit organization; therefore, all donations are acknowledged as contributions to the University of Michigan and will be credited to the sponsor's cumulative giving total.



THANK YOU TO OUR SPONSORS!



COLLEGE OF ENGINEERING
MECHANICAL ENGINEERING
UNIVERSITY OF MICHIGAN



Modified Gear and Spline



MICHIGAN ENGINEERING
UNIVERSITY OF MICHIGAN

Micro Gauge, Inc.



ATLAS Gear COMPANY
ATLAS Gear CHINA LLC



COLLEGE OF ENGINEERING
COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF MICHIGAN

Temp-Rite Steel Treating



TOYOTA



Van Loon Industries, Inc.



TOYOTA

NSK



All team sponsors receive a website link, logo on the vehicle, team photo, and season recap video

Level	Diamond (\$10000+)	Platinum (\$9999-\$5000)	Gold (\$4999-\$2500)	Silver (\$2499-\$1000)	Bronze (\$999-\$250)
Appreciation	Platinum + company banner displayed at competition, detailed company description on website	Gold + extra large website and vehicle logos, team Resume Book.	Large website and vehicle logos	Medium website and vehicle logos	Website link, vehicle logo

Interested in learning more about the team? Contact us at michiganbajaracing@umich.edu, or visit our website: baja.engin.umich.edu