



Collegiate Design Series News

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Issue Highlights

100 Years; 100 Miles; 1 Winner – SAE Mini Baja 100pg. 1

ETS Receives Triple Crownpg. 2

Dayton Section Hosts the 2005 Mini Baja Midwestpg. 3

University of British Columbia Takes 1st Placepg. 4

Indiana Students Achieve 1,836 MPG in Supermileage Competitionpg. 5

Michael J. Royce Receives 2005 SAE Excellence in Engineering Education Awardpg. 6

Special Thanks!!!! 2005 Collegiate Competitions Sponsorspg. 7

100 Years; 100 Miles; 1 Winner – SAE Mini Baja 100

This year, the Mini Baja West event became the SAE Mini Baja 100 in honor of the Society of Automotive Engineer’s 100th anniversary. Because Mini Baja is the longest running Collegiate Design Series event, SAE celebrated the event in true Baja style – in the Arizona desert. To emphasize the 100th theme, the competition’s four-hour endurance event has been modified to a 100-mile race.

University engineering students from Canada, Guatemala, Mexico, South Korea, South Africa, Venezuela, Puerto Rico, and the United States gathered to compete on June 1st at Caterpillar’s Tinaja Hills Training Center in Green Valley. Setting another record for the competition series, the event had 131 teams registered online and 119 onsite competing.

With the volunteers from Caterpillar, the endurance course was built slightly over two miles per one lap. Finishing the endurance race was Queen’s University reaching the 50 laps only 16.311 seconds faster than Ecole de Technologie Superieure with a speed of 19.53 mph. The endurance race lasted over five hours.

Beating last year’s 1st place winner by only 20.72 points, Ecole de Technologie Superieure captured their second 1st place win of the season. ETS was new to the west competition and they came prepared and ready to win.



The top ten finishers were:

- 1 Ecole De Technologie Superieure, Car # 12..... 909.97
- 2 Oregon State University, Car #1 889.25
- 3 Queen’s University, Car #47 884.65
- 4 University of Wisconsin-Madison, Car #55..... 859.98
- 5 University of Michigan-Ann Arbor, Car #127 857.42
- 6 Oregon State University, Car #3 834.50
- 7 Purdue University-W Lafayette, Car #23..... 831.71
- 8 Auburn University, Car # 14 830.32
- 9 University of Louisville, Car #62 820.18
- 10 Brigham Young University, Car #2 808.71

Last but not least, SAE would like to extend a special thanks to all the volunteers and supporters of the event and participating teams!

For more information on the final scores, please visit <http://www.sae.org/students/mbw2005results.xls>



ETS Receives Triple Crown

Ecole de Technologie Superieure posted an overall score of 905.6 during the Mini Baja Midwest competition held June 16 – 19 in Troy, Ohio. ETS of Montreal won the overall competition, captured the Dayton Cup and achieved a three-peat in the process.

The win gave Ecole de Technologie Superieure a “three-peat” of Mini Baja Championships in 2005. It’s the first time that a school has won first place overall in a single season since the Mini Baja competition began in 1976.

With engineering students from Argentina, Brazil, Canada, India, Mexico, South Korea, and the United States registration for the SAE Mini Baja event reached the capacity of 141 teams online; onsite there were 115 teams ready to compete.

1	Ecole De Technologie Superieure, Car #5	905.6
2	SAE Brazil #2, Car #73	903.6
3	University of Michigan-Ann Arbor, Car #35.....	885.2
4	Oregon State University, Car #17	882.7
5	University of Akron, Car #2	875.4
6	Auburn University, Car #3	873.3
7	Instituto Technolgico De Buenos Aires, Car #7	873.3
8	University of Michigan-Dearborn, Car #70.....	871.0
9	Tennessee Tech University, Car #97	856.9
10	Rochester Institute of Technology, Car #9.....	821.3

SAE would like to extend a special thanks to all the volunteers and supporters of the event and participating teams!

For more information on the final scores, please visit
<http://www.sae.org/students/mbmw2005results.xls>

Dayton Section Hosts the 2005 Mini Baja Midwest

Another exciting Mini Baja season wrapped up in grand fashion as the Mini Baja Midwest event concluded on June 19th, 2005. The typical rainy weather at previous Midwest events never threatened, and the event sailed through all 4 days with few problems. The 2005 Mini Baja Midwest will stand out in everyone's memory for many reasons, especially in light of the 100th anniversary of SAE.

When it was over, Ecole de Technologie Superieure (aka ETS or Car #5) topped the Overall score ranking with 905.56 points, beating the 2nd place team of SAE Brazil #2 (Car #73) by only 2 points. Their win at Midwest provides them with the unique distinction of winning all three Mini Baja events for 2005 and assuring them 1st place in both the Dayton Cup and Schmidt Award results as well. They demonstrated their commitment to the Baja program, and our hats go off to all the students who participated on their team. We hope this commitment to Baja extends beyond college as event volunteers after graduation.

A strong showing by ETS in the 4-Hour endurance event boosted their overall point total, as they took 2nd place behind the endurance winner, Auburn University (Team #3). The only other car finishing on the lead lap in the race was Oregon State University's "Beaver Racing Black" team (Car #17). Kenworthy's MX Park provided a superb course with a variety of terrains that included the large jumps of the motocross course, the tighter-cornered quad track, the sand and gravel area along the Great Miami River, and the heavily-wooded area bordering the motocross course. Many teams expressed their delight at the diverse challenges afforded by the nearly 3-mile layout, and it proved to be a good measure of each car's endurance (or lack thereof).

The dynamic events of Maneuverability, Acceleration & Top Speed, Hill Climb, and the ever-popular Sled Pull ran far ahead of the anticipated schedule on Saturday, June 18th, easily allowing two attempts by each team on every event. Many teams performed extremely well, but the team of SAE Brazil #2 (Car #73) dominated with first place in all of the events except the Sled Pull, which was won by the team of University of Laval (Car #94). Average acceleration over the 100' trap reached 0.35 g's, top speed "topped" at 29.3 mph, most reached the top at the hill climb, but nobody achieved a full pull at the sled pull. All of the maneuverability top-place finishers had perfect runs with no hit course cones or missed course gates, creating a very competitive environment.

We were proud to help make the Mini Baja Midwest a positive memory for all, especially the students who participated. Many of the students expressed their sincere appreciation for the planning and innovations that have traditionally made the Mini Baja Midwest event one of the premier collegiate competitions anywhere, both within SAE and otherwise. What a privilege it is to help shape the future engineers of our profession in such an exciting manner. For more information on the Mini Baja Midwest event, please visit the event website at <http://minibaja.saedayton.org>, where you can find scores, schedules, and also biographies of the volunteers that help make the event possible. We welcome any feedback and comments.

Sincerely,

The 2005 Mini Baja Midwest Chairmen



Registration for 2006 Competitions will open on Monday, October 3, 2005 at 10 a.m.

EST and will close at midnight on Thursday, December 29, 2005.

- **There will be no late registration this year; if you are planning to compete you must sign up by the deadline!**
- **Formula SAE & Formula SAE West. For the first month that registration is open, schools will have to choose either Formula SAE in Michigan or Formula SAE West in California to compete in. The system will not allow schools to register at both events. After a full month, if there are any slots still available, teams may register for the second competition on a first come, first serve basis.**

University of British Columbia Takes 1st Place



The 2005 Supermileage competition was held at the Eaton Proving Grounds in Marshall, Michigan celebrating the 26th anniversary on June 9 & 10th. Two major contributors of the competition are Briggs & Stratton as well as Eaton Corporation, assistance was also provided from the Western Michigan Section.

Despite the humid weather.... A big change from the cold rain last year, the teams were safe, a huge contribution to making the event successful.

The University of British Columbia finished first in the collegiate division with a fuel economy of 1608 miles per gallon, their design proposal report score was 210 out of a possible 150, making their total score 1818.

Mater Dei High School finished first in the high school division, they placed first last year as well. With a fuel economy of 1836 miles per gallon and a design score of 178 their grand total was 2014. They improved their score from last year by a whopping 604 points.

A \$100 check was awarded to South Spencer High School (high school division) and ETS (Ecole De Technologie Superieure, collegiate division) for the best design proposal. South Spencer scored 187 and ETS with 215 out of a possible 250 points.

ETS placed second overall in the collegiate division, with a fuel economy of 1584 miles per gallon, the design score of 215 for a grand total of 1799.

There were a few new awards presented this year; Most Visually Appealing Vehicle, Closest Predicted to Actual Fuel Economy, and Best Team Attitude.

The University of Windsor received a \$100 check for the closest predicted to actual fuel economy, their estimated amount was 775 and their actual amount was 764.4 mpg. The University of Laval was very close as well, predicting 780 with an actual amount of 769.1. The Most Visually Appealing Vehicle as well as the Best Team Attitude went to Delhi College of Engineering and Technology; both awards came with a monetary award of \$100.

The 26th Annual Supermileage event attracted 23 universities and high schools from 3 different countries.

For more information, final scores, and photos please visit;
<http://students.sae.org/competitions/supermileage/>

Indiana Students Achieve 1,836 MPG in Supermileage Competition

A team of students from Mater Dei High School in Evansville, Indiana, took top honors in mid-June at the 2005 Supermileage competition by achieving 1,836 miles per gallon (mpg). Sponsored by the Society of Automotive Engineers (SAE), the competition requires each team to build a fuel-efficient vehicle using a small four-cycle engine, then demonstrate its fuel efficiency by traveling 9.6 miles on an oval track while maintaining a speed of at least 15 miles per hour. The competition involves building lightweight, highly aerodynamic vehicles with low rolling resistances, and most teams also rebuild the engine and fuel system for greater fuel efficiency.

For instance, the entry from the University of British Columbia (UBC) rides extremely low with wheels totally encased in a teardrop-shaped body, powered by a reduced-displacement, fuel-injected engine. The vehicle features an aluminum honeycomb chassis with a carbon fiber body that achieves a drag coefficient of only 0.11 (for comparison, the aerodynamic Honda Insight has a drag coefficient of 0.25, and the ideal teardrop shape has a drag coefficient of about 0.04). The vehicle took first place among the college teams with a fuel economy of 1,608 mpg. See the SAE press release and Supermileage Web page, as well as the UBC team Web site.

DaimlerChrysler researchers are also looking for more aerodynamic vehicles, and have drawn their inspiration from an unlikely source: the boxfish. The resulting concept car, called the Mercedes-Benz Bionic Car, features an extremely short snout and high glass "forehead" for the windshield, followed by streamlined contours tapering towards the rear of the car. With a drag coefficient of only 0.19, combined with a lightweight honeycomb body structure and a direct-injection diesel engine, the Bionic Car achieves an estimated fuel economy of about 70 mpg. See DaimlerChrysler's special report on the Bionic Car.

Kevin Eber, editor



The Supermileage entry from the University of British Columbia.

Credit: UBC

Keep your eyes posted to SAE's Student Competitions website for change notifications, such as:

- Revised Rule Postings
- 2006 Competition Schedule
- Transponders for Mini Baja

Michael J. Royce Receives 2005 SAE Excellence in Engineering Education Award

Warrendale, PA (June 29, 2005) -

Michael J. Royce was selected to receive the 2005 Society of Automotive Engineers' (SAE) Excellence in Engineering Education (EEE) Award. Royce was presented with the award on April 12, 2005 during the Honors Convocation at the annual SAE World Congress in Detroit, Michigan.



This award, given annually, recognizes outstanding contributions made by an individual toward activities related to the SAE Engineering Education Board (EEB). The award is given for any of the following types of service: promotion of SAE student activities at the international or local levels, contributions that advance engineering education, contributions in support of the SAE Collegiate Design Series competitions, and promotion of educational-related activities at any level.

Royce, recently retired from the DaimlerChrysler Corporation, is now working as a consultant with Albion Associates LLC. In close to 41 years within the Chrysler family, he held a number of management positions, including assignments in the following departments: Truck Engineering, Product Planning, Engine Development and Powertrain Program Management. Between 1992 and 1994, he was the Technical Director at Lamborghini Engineering in Italy, managing the Chrysler-Lamborghini Formula 1 engine program. His last assignment at DaimlerChrysler was that of Senior Manager, Advanced Engine Technologies.

Royce's interest in mentoring engineers started many years ago. He has been actively involved in Formula SAE since 1986, has been a member of the Formula SAE Rules Committee since 1996, currently serving as its chairman. He has officiated at all the Formula Student (UK) and Formula SAE-Australasia competitions. From 2000 to 2004, he was one of two DaimlerChrysler members serving on the Formula SAE Consortium. He also currently chairs SAE's University Programs Committee.

Royce's interest in engineering education has not only involved FSAE, but in 1999 he was a founding member of the DaimlerChrysler Automotive Engineers Program, and was on the organizing committee of this program until his retirement.

Royce has been an active member of SAE since 1965 and has served on the organizing committee of all five of the Society's Motorsport Engineering Conferences.

Royce received bachelor's and master's degrees in mechanical sciences from Cambridge University, England. He also holds a master's degree in automotive engineering from the Chrysler Institute of Engineering and in management from the University of Michigan-Dearborn.

Special Thanks!!!!

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Award Descriptions

Briggs & Stratton Overall Performance Award - Mini Baja
 Bruel and Kjaer Quiet Car Cup - FSAE
 Goodyear Best Performance Award - FSAE
 Honda R&D Americas Endurance Award - Mini Baja
 Honda R&D Americas Engineering Design Award - Mini Baja
 Hoosier Tire Autocross Award - FSAE
 Lincoln Electric Welding Award - FSAE
 Polaris Innovative Suspension Award - Mini Baja
 Polaris Intake Systems Design Award - FSAE
 Robert Bosch Corporation Engine Management System
 Award - FSAE
 Society of Plastics Engineers' Composites Division Award -
 FSAE
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