

### Formula Student - Racing for 1st



Team RMIT

First time entrants in Formula Student, Royal Melbourne Institute of Technology (RMIT) from Australia took 1st place overall finishing with more than a 100 point lead. Though this team is new to the international event, RMIT has competed in their home court at the FSAE-Australasia event held every December. Forty students were involved in building the car as part of their coursework and were assessed on it as part of the degree program.

Eight team members were chosen to bring the car to the UK competition to compete against international universities including The University of Bath, Helsinki Polytechnic, University of Toronto and Dartmouth College.

With combined efforts of SAE and IMechE staff and the 750 Motor Club volunteers, England was host to the 7th Annual Formula Student Competition. The event was held at the Bruntingthorpe Aerodrome and Proving Grounds from July 9 – 11, 2004. The event schedule opened with Design, Presentation and Cost Judging along with Scrutineering on Friday. The Dynamic events started on Saturday leaving Sunday to finish with the Endurance race.

First Place - RMIT





Dartmouth College places fifth place overall

Like the Formula SAE, Formula Student had a record-breaking registration with a total of 85 teams in all four classes from 19 different countries. Unlike the Detroit and Australian events, Formula Student offers different classes of entry. Class 1 is for a first-year fully constructed and running vehicle. Class 1- 200 Series is for second year cars which have been modified. Class 2 is for teams that have progressed beyond initial design concepts into manufacture of complete vehicle systems. The minimum requirement in this class is a complete chassis. Class 3 is intended as the basic entry for teams new to the competition, where it introduces the projects at the design and component/model validation stage.

## Overall Winners:

**Class 1** – RMIT University, Australia

**Class 2** – Imperial College, United Kingdom

**Class 3** – University of Bath, United Kingdom

### Top 5 Overall in Class 1:

1) **RMIT University**, Australia, Car #29

2) **University of Toronto**, Canada, Car #1

3) **Technical University of Braunschweig**, Germany, Car #19

4) **KTH The Royal Institute of Technology**, Sweden, Car #71

5) **Dartmouth College**, United States of America, Car #37

**Class 1 Best Design** was won by **Ecole de Technologie Superiere**, car #86



Ecole de Technologie Superiere during the tilt test

Monash formula car



## The Dell MP3 Player goes to...

The winner of the Dell MP3 Player is Nicholas Strand of the California State University - Sacramento FSAE team.

The Dell MP3 Player and Car Kit is awarded to one lucky student member who transferred from student membership to professional membership during the competition season.

Transferring to professional membership is easy and affordable! For \$20.00, you can have all of the benefits of being a professional member at 80% off!. To transfer and learn more about SAE, please visit <http://www.sae.org/students/membership/transfer.htm>.



## Win FREE Registration!

This is your final chance to qualify to win FREE Registration to a 2005 competition of your choice. Your team will have the opportunity to register prior to the registration start date. That means your guaranteed to participate!

Was your team featured in a newspaper or magazine? Did your team have a new innovation? Did something happen at an event that you want to share? We want to hear from you! Send in your article and photos to [collegiatecompetitions@sae.org](mailto:collegiatecompetitions@sae.org). Remember to explain the photos in your article.

## Posters online

Join the **XTREME TEAM**

[www.sae.org/students](http://www.sae.org/students)  
**SAE International Meeting Notice**

Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Place: \_\_\_\_\_  
 Topic: \_\_\_\_\_

Meeting notice posters are available online at <http://www.sae.org/students/student.htm>. There are seven to choose from including Mini Baja, Clean Snowmobile, Formula SAE, and Aero Design among others. There are two different sizes, 8x10 and 11x17, for your printing convenience. They are an eye-catching resource to gain members and promote your team around campus. Check them out! It just might be you and your team on the posters!

## Renew Your Membership

Students may renew or pay their membership dues online at <http://www.sae.org/students/index.htm> or call SAE Customer Service at 1-877-606-7323.

Graduates, transfer your Student Membership to Professional Membership. Transfer online today at <http://www.sae.org/students/membership/transfer.htm>

## International News

### FSAE Brazil

For the first time in history, SAE BRAZIL will have their own Formula SAE competition. FSAE BRAZIL will join teams of students and teachers from Brazilian engineering universities to design, fabricate, and compete with small formula-style race cars. International restrictions and specifications are placed on the car frame and engine so the students' knowledge, creativity, and imagination are tested.

The first Formula SAE BRAZIL 2004 official presentation will occur during the XIII SAE BRAZIL Congress on November, 16 to 18th, 2004, with a well located booth and a dynamic demonstration on November, 18th, at the parking lot of Transamerica Expo Center in Sao Paulo, Brazil.

Please visit <http://www.saebrasil.org.br/> for more information on Formula SAE BRAZIL.



McGill University



Queens University

## New Grant Established to Assist Formula SAE<sup>®</sup> Rookie Teams

A new grant that will assist Formula SAE rookie teams has been established in recognition of the late Bill Adam, a 35-year member of SAE and long-time supporter of Formula SAE.

The William R. "Bill" Adam Formula SAE Grant for Rookie Teams will provide funding to assist a rookie team with the development of its project. The selected team will receive a grant of \$500 that will be used toward the development of the vehicle or to help support travel expenses to the competition.

During a career that spanned more than 40 years in the automotive industry, Adam was active in program management, ride development, and NVH on-road development. He was a co-patent developer of integrated manifold-muffler-catalyst design, and an avid race car enthusiast. The grant recognizes his lifelong dedication to mentoring young engineers.

Contributions for this grant are being accepted by the SAE Foundation and can be mailed to the SAE Foundation, 400 Commonwealth Drive, Warrendale, PA 15096-0001. For more information, please call 724.776.4841 or e-mail [foundation@sae.org](mailto:foundation@sae.org).

### FREE REGISTRATION

*Do you have information, stories, or pictures that you want to share regarding your team?*

Email them to [CollegiateCompetitions@sae.org](mailto:CollegiateCompetitions@sae.org) and qualify for a drawing for Free Registration to a 2005 event of your choice!

### Renew Your Membership

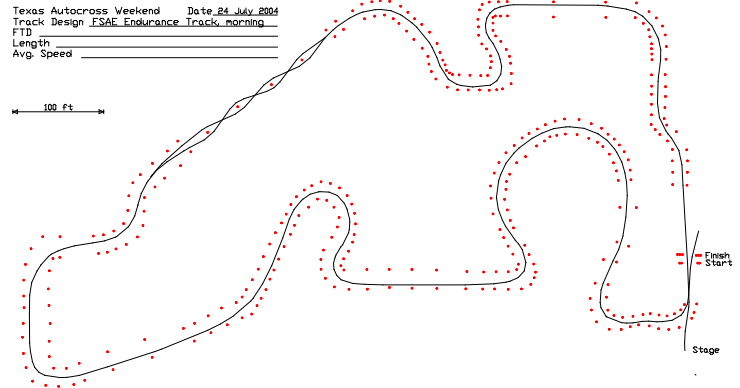
Students may renew or pay their membership dues online at <http://www.sae.org/students/index.htm> or call SAE Customer Service at 1-877-606-7323.

Graduates, transfer your Student Membership to Professional Membership. Transfer online today at <http://www.sae.org/students/membership/transfer.htm>

## Texas Autocross Weekend 2004

### Submitted by Bob Woods, UTA

On Saturday July 24, eight Formula SAE teams converged on the campus of the University of Texas at Arlington to practice driving, to compete with each other, and to share ideas of design and driving of these unique racecars that are designed and built from scratch by universities in a time period of one year. The universities represented were the University of Texas at Arlington (UTA), the University of Texas at Austin (UT), the University of Texas at San Antonio (UTSA), Texas A & M University (TAMU), the University of New Mexico (UNM), the University of Oklahoma (OU), the University of Kansas (KU), and the University of Cincinnati (UC). Between the eight universities there was a total of 20 cars and 53 drivers.



Morning track, FSAE endurance

The morning session used a track based on the Formula SAE endurance event course specifications. In the afternoon, a second track was setup that was more open and faster representative of a Sports Car Club of America (SCCA) autocross course.

In the morning session, Jordan Mussler, TAMU, took the fastest time of the day (FTD) in the 04 car (no wings) with a time of 50.240 seconds around the 0.504 mile course with an average speed of 36.1 mph. In second place was Ken Hassler, UTA, with a time of 51.535 in the 99 250 cc car revving to 20,000 rpm. Erick Kohler, UTA, placed third in the winged 04 car with a lap time of 50.128 plus a 2 second penalty for a cone he hit.

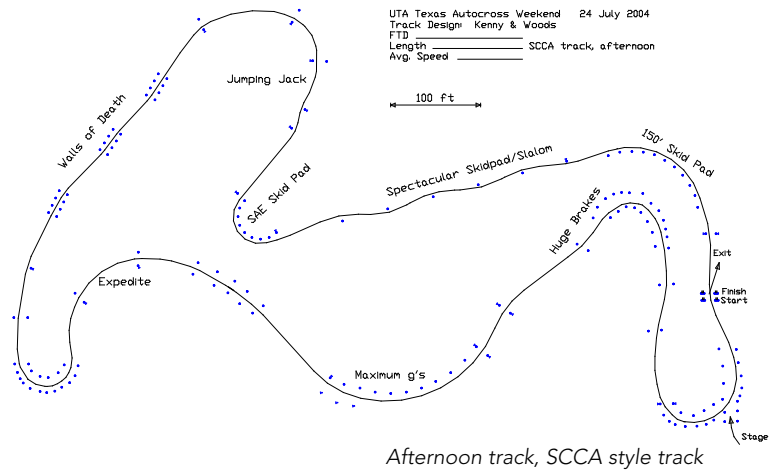


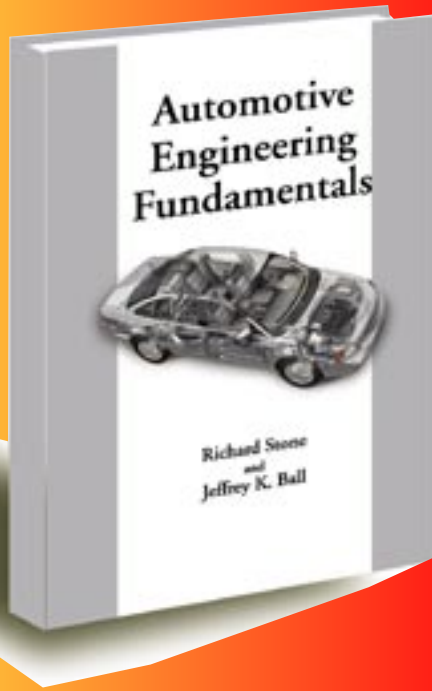
In the afternoon session, the cars with wings got a better workout around the 0.555 mile course. Erick Kohler took FTD with a 48.749 in the 04 winged car with an average speed of 41.0 mph. The car recorded a turn at over 1.6 g's on the asphalt parking lot. Jane Willis who took first place at SCCA Nationals in FSAEL last year in UTA's 03 car ran 51.768 in her first drive in the 04 UTA car.

On Sunday July 25, the FSAE cars gathered for the Texas Region SCCA regional autocross for the largest AM (or FSAE) class ever held. There were 13 cars and 36 drivers entered. SCCA named the event the "Carroll Smith Memorial Event" in honor of the legendary author and racecar engineer. Carroll was the chief design judge for FSAE, Formula Student and FSAE-Australasia and attended several Texas Region and Texas Autocross Weekend events.

Erick Kohler, UTA, took the top time of 36.007 driving the 04 car with wings. Jordan Musser, TAMU, took second with 36.365 in the 04 car without wings; wow what a spectacular display of driving of a car that had handling issues. Dr. Bob Woods, UTA, placed third with a 36.702 in the 03 winged car.

The full results for event 5 are posted on the autocross website <http://autocross.com/texasregion/>. This was a weekend filled with socializing, exchanging of ideas, and true FSAE competing.





## **Automotive Engineering Fundamentals now available from SAE**

The automobile has significantly evolved since the late 1800s, when these "ostentatious displays of wealth" - so dubbed by U.S. President Woodrow Wilson - were met with cries of "Get a horse!" as they obtrusively hissed their way down the street.

In the introduction of Automotive Engineering Fundamentals (SAE Order Number R-199), Richard Stone and Jeffrey K. Ball provide a fascinating and often amusing history of the passenger vehicle, showcasing the various highs and lows of this now-indispensable component of civilized societies. The authors then provide an overview of the publication, which is designed to give the student of automotive engineering a basic understanding of the principles involved with designing a vehicle.

From engines and transmissions to vehicle aerodynamics and computer modeling, the intelligent, interesting presentation of core concepts in Automotive Engineering Fundamentals is sure to make this an indispensable resource for engineering students and professionals alike.

### **Sections include:**

- Introduction and Overview
- Thermodynamics of Prime Movers
- Spark Ignition Engines
- Diesel Engines
- Ancillaries
- Transmissions and Driveline
- Steering Systems and Steering Dynamics
- Suspensions
- Brakes and Tires
- Vehicle Aerodynamics
- Transmission Matching and Vehicle Performance
- Alternative Vehicles and Case Studies

## **SAE members save 20%!**

ISBN 0-7680-0987-1, Casebound 2004.

**\$99.95\***

Order No. R-199

\*Price subject to change

### **Order today!**

Online: [store.sae.org](http://store.sae.org)

E-mail: [CustomerService@sae.org](mailto:CustomerService@sae.org)

Phone: 1-877-606-7323 (U.S. & Canada only)  
or 1-724-776-4970



# We would like to thank the following sponsors for their support for the 2004 competition season

## CORPORATE SPONSORS

DaimlerChrysler – FSAE Consortium  
Ford Motor Company – FSAE Consortium  
General Motors Corporation – FSAE Consortium  
Briggs & Stratton Corp. – Platinum Sponsor, Mini Baja  
EDS – Platinum Sponsor, FSAE  
Honda R&D Americas, Inc. – Gold Sponsor, Mini Baja  
Eaton Corporation – Supermileage  
Henkel/Loctite Technologies – old Sponsor, FSAE  
Lincoln Electric – Gold Sponsor, FSAE  
ArvinMeritor, Inc. – Gold Sponsor, FSAE  
Goodyear Tire and Rubber Company – Gold Sponsor, FSAE  
Hoosier Racing Tire – Gold Sponsor, FSAE  
Visteon Climate Control – Gold Sponsor, FSAE  
Ricardo, Inc. – Gold Sponsor, FSAE  
Land & Sea, Inc. – Gold Sponsor, FSAE  
Louts – Gold Sponsor, Clean Snowmobile Challenge  
Briel & Kjaer – Gold Sponsor, FSAE  
Sunoco, Inc. – Gold Sponsor, FSAE  
ISMA – Gold Sponsor, Clean Snowmobile Challenge  
Gage Products – Gold Sponsor, Clean Snowmobile Challenge  
MSA – Gold Sponsor, Clean Snowmobile Challenge  
Lotus – Gold Sponsor, Clean Snowmobile Challenge  
Continental Teves – Gold Sponsor, FSAE  
Robert Bosch Corp. – Gold Sponsor, FSAE  
Altair Engineering – Gold Sponsor, FSAE  
Comsource Inc. – Silver Sponsor, FSAE  
Cosworth Technology Inc. – Silver Sponsor, FSAE  
Solidworks Corporation – Silver Sponsor, FSAE  
Polaris – Silver Sponsor, FSAE  
Polaris Industries Inc. – Silver Sponsor, Mini Baja  
William C. Mitchell Software – Silver Sponsor, FSAE

EMITECH – Silver Sponsor, Clean Snowmobile Challenge  
Blue Ribbon Coalition – Bronze Sponsor, Clean Snowmobile Challenge  
ACSA – Bronze Sponsor, Clean Snowmobile Challenge  
PCB Piezotronics – Bronze Sponsor, Clean Snowmobile Challenge  
Portage Heath System – Bronze Sponsor, Clean Snowmobile Challenge  
ThermoAnalytics, Inc. – Bronze Sponsor, Clean Snowmobile Challenge  
Woody's – Bronze Sponsor, Clean Snowmobile Challenge  
SAE Detroit Section – Bronze Sponsor, FSAE  
Colder Products – Bronze Sponsor, Clean Snowmobile Challenge

## SUPPLIER SPONSORS

Aurora Bearing C. – FSAE and Mini Baja  
Corsa Instruments Inc. – FSAE and Mini Baja  
National Instruments – FSAE and Mini Baja  
SpaceAge Control, Inc. – FSAE and Mini Baja  
Land & Sea, Inc. – FSAE and Mini Baja  
Leaf Racewear – FSAE and Mini Baja  
Lincoln Electric Co. – FSAE  
Gamma Technologies, Inc – FSAE  
Hoosier Racing Tire – FSAE  
Cycle Search International, Inc. – FSAE  
Goodyear Tire and Rubber Company – FSAE  
Spa Technique, Inc – FSAE  
Visteon Climate Control – FSAE  
Performance Friction Corp – FSAE  
Performance Electronics Ltd – FSAE  
RCV Performance – FSAE  
Titan Motorsport North America – FSAE  
Risse Racing Technology – FSAE  
Superior Engine Technology – FSAE

## AWARD SPONSORS

SCCA - Carroll Smith Mentor's Cup – FSAE  
Goodyear Tire and Rubber Company – Goodyear Best Performance Award – FSAE

Visteon Climate Control – Powertrain Cooling System Award – FSAE  
Honda R&D Americas, Inc. – Engineering Design Award – Mini Baja  
Polaris – Polaris Innovative Suspension Award – Mini Baja  
TARDEC – Off Road Mobility Award – Mini Baja  
Mike Schmidt Memorial Mini Baja Iron Team Award – Mini Baja  
Honda R&D Americas, Inc. – Endurance Award – Mini Baja  
Briggs & Stratton – Overall Performance Award – Mini Baja  
Dayton Cup – Best Mini Baja team of the year judged by the Dayton Section – Mini Baja  
Robert Bosch Corporation – Engine Management System Award – FSAE  
Continental Teves – Best in Class Brake System Award – FSAE  
Society of Plastics Engineers' – Composites Division Award – FSAE  
Henkel Technologies – Structural Foam Award – FSAE  
Hoosier Tire – Autocross Award – FSAE  
ArvinMeritor – Suspension System Award – FSAE  
Briel & Kjaer – Briel and Kjaer Quiet Car Cup – FSAE  
EDS – EDS Outstanding Sportsmanship Award – FSAE  
Lincoln Electric Co. – Lincoln Electric Welding Award – FSAE  
Ricardo, Inc. – Ricardo Powertrain Award – FSAE  
William C. Mitchell Rookie Award – FSAE  
Formula SAE Certificate of Accomplishment – FSAE  
Cost Award – Best Score in Cost – FSAE  
Presentation Award – Best Score in Presentation – FSAE  
SAE Perserverance Award – Top 5 Rookie Team s with the highest overall points – FSAE  
Spirit of Excellence Award – Top ten overall finishers – FSAE  
Road & Track Triathlon Award – Trophy – FSAE