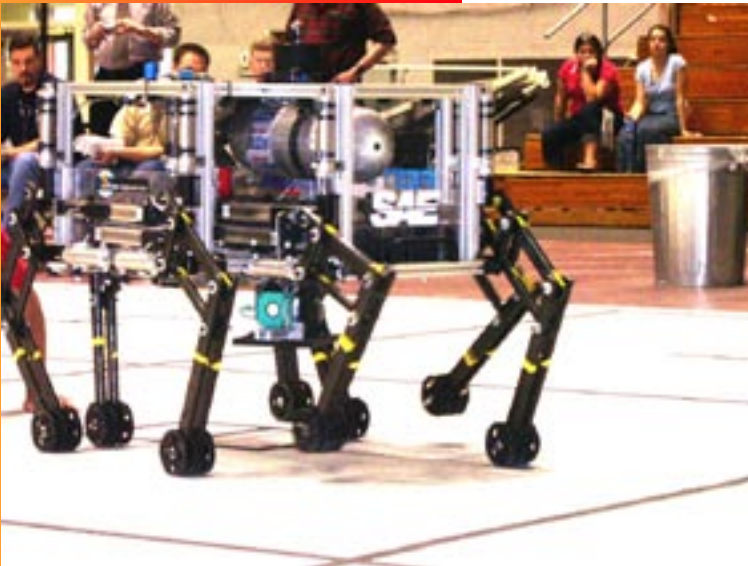


Walking Robot Systems Challenge 2005



2004 participant, Universidad Panamericana placed 6th overall.

It's not about walking anymore. The Walking Robot Challenge has walked away and our new Robot Systems Challenge is taking its place. The new competition is task-based rather than method-based. SAE has made the challenges harder, but in return are allowing the competitors a greater flexibility in their designs.

The first major change is the elimination of the walking requirement. Wheels are permitted. Robots can move by any method the team chooses and can use wheels, tracks, legs, arms, springs, jumping, tentacles or virtually anything else other than flying in any and all combinations. Flying robots are prohibited. Walking is, of course, permitted if that's what the team chooses.

Second, you may add a specialized attachment for every event. So if you want to develop a block pick-up and sorting device for the "Treasure Hunt" event

feel free to do so. Such specialized attachments can be added and removed before and after each event. Thus a robot can have up to six attachments – one for each challenge.

Third, direct wire control has been eliminated so you can't follow the robot around the course with a controller anymore. The base control mode is now remote tele-operated, however a trailing cable link is allowed.

A robot and its attachments constitute a "Robot System" which is a key concept to keep in mind during the design phase.

Here is what your Robot System is expected to do:

Challenge 1 – "Drop & Dash".

After being dropped one meter, the robot will be expected to recover and run 9 meters down the course.

Challenge 2 – "Over and Under".

Climb over a 2ft high wall then go under an obstruction that is raised 2ft high off the ground.

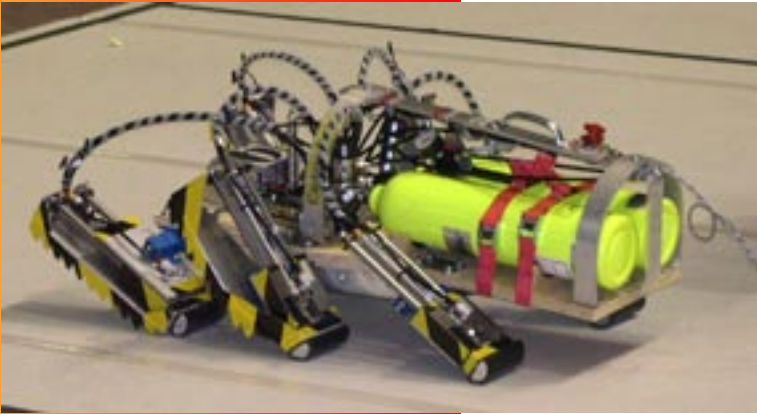
Challenge 3 – "Tug of War".

It's just what it sounds like – a pulling competition against other robots.

Issue Highlights

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Registration Opens
October 4, 2004 - 10:00 A.M.
Eastern Daylight Savings Time



Designed after the cockroach, Universite de Sherbrooke placed 7th overall.

Challenge 4 – “Treasure Hunt”.

All you have to do is have your robot pick up the red block from a field of red and black blocks. Both colors have the same point value except the black blocks are a negative score and one other thing – there are twice as many black blocks!

Challenge 5 – “Collect the Eggs”.

Collect as many eggs as possible within the time limit. This challenge is designed to test the robot’s ability to quickly perform a delicate task in a time sufficient manner.

Challenge 6 – “Endurance and Obstacles”.

The last event is similar to the previous endurance challenge of Walking Robot, but may be more difficult depending on the organizers course preference.

SAE feels the change from a method-based to a task-based competition will greatly increase the students design freedom and lead to a much more interesting and exciting competition. Check the Robot System Challenge rules online for complete requirements and event descriptions at <http://www.sae.org/students/walkrule.pdf>

For more information on the 2005 event, please visit our website at <http://www.sae.org/students/walkeventinfo.htm>

Feel free to join us at Ecole de Technologie Superieure (ETS) in Montreal, Quebec on April 28, 2005. Registration for this event opens on Monday, October 4, 2004 at 10 am Eastern Daylight Time.

Aero Design Adds Micro Class

Aero Design has expanded its challenge to teams. A new Micro Class has been added for the 2005 competition season.

The objective of Micro Class is to design an aircraft with the highest possible payload fraction. Obviously the goal is to drive the aircraft weight as low as possible. If anyone knows a source of the mythical material “unobtainium”, please let us know. Micro Class requires teams to make trade-offs between conflicting requirements. Teams who register for Micro Class may simultaneously compete in one of the other two classes, Regular or Open.

Also, beginning with the 2005 events, pre-qualification flights will not be required. Successful first round flights will be proof of qualification and will be scored.

For more information on Micro Class and other Aero Design information, please visit <http://www.sae.org/students/aerodes.htm>.



Parks University at Aero Design West

Stewards for Formula SAE 2005

Beginning with the 2005 FSAE competition stewards will no longer be automatically assigned to teams. We are confident that experienced teams and their faculty advisors are easily capable of managing their own schedules and interacting with competition officials without the intervention of a steward. Any unique information contained in the Steward's Handbook, e.g. maps, schedules, supplier lists, will be posted on the FSAE website or otherwise distributed to the teams.

A pool of experienced stewards will be maintained for assignment on an "as needed" basis. Specifically stewards will continue to be assigned to rookie teams and teams from universities outside North America. Small teams, teams with special requirements and teams that for any reason feel they need a steward may request an assignment from the pool.

We realize that some teams have had the same steward for many years and will want to continue that relationship. Feel free to directly contact your traditional steward and ask them to continue to serve. Likewise, if your team doesn't have a regular steward you may recruit one on your own. If you redraft, or recruit, your own steward all they need to do is sign in on-site at volunteer's registration. When you recruit a steward please email the steward's name and contact information to Kathleen McDonald at katklauz@aol.com so we can list them as an official volunteer.

If your team would like to request a steward for FSAE 2005, or if you need assistance in touching base with your long term steward, contact Kathleen.



NEW Collegiate Product Manager

My name is Sam Barill and I am a new Collegiate Product Manager.

I am responsible for providing product content development and management for the SAE Collegiate Design Series events, Mini Baja, Aero Design and Supermileage, both domestically and internationally. I have 13 year's of SAE experience in exhibit sales and event operations and hope to provide value to SAE's Collegiate Design Series. I have been the Show Manager for SAE's largest event...SAE World Congress for the last 10 years.

I have been in the Association industry since 1984. I have planned, organized and managed over 200 events in my 20 plus years in the industry. I was with the Society of Manufacturing Engineers until 1992 where I organized and planned Machine Tool events. I was the Show manager and on-site operations lead staff member for WESTEC, the largest annual machine tool show in the country (350,000 nsf). I graduated from Wayne State University with a BS in Industrial relations. I am a member of CESS, IAEM and EOS. My hobbies include chasing Hot Air Balloons, fishing and motorcycles. I look forward to the new challenge of helping students in SAE's Collegiate Design Program.



Sam Barill, Collegiate Programs Manager

UTA Wins Formula SAE Japan

-Dr. Robert Woods

This year marks the second annual FSAE event in Japan and the first event open to international teams. University of Texas Arlington was one of the three international teams present.

This being the second year for the FSAE team in Japan, most teams were still on the learning curve, so our well-developed car was very intriguing for them. I suspect that more pictures were taken of the UTA car than all others combined. There was always a crowd around the car, especially after it ran the autocross. The teams are still on the learning curve for driving as well, so seeing the UTA car go really fast was equally interesting. The track was a clean asphalt parking lot. Even though the autocross and endurance tracks were relatively slow, we recorded 1.4 to 1.6 g's on almost all of the turns.

In addition to the overall win, UTA placed first in Design, Autocross, and Endurance. We placed 2nd overall in Static Events. We won the Safety Design Award and the FISISTA Best Team Award. We placed 2nd in the Unique Design Award and 3rd in the JAMA Chairman Award for Safety, Environmental, and Educational Achievement. What we believe to be a very prestigious recognition, we were awarded the Ministry of Economy, Trade and Industry Award, which was presented by the Minister himself.

UTA lead over the second place finisher with a 150 point lead. Our apologies to Kanagawa Institute of Technology who would have won their Japanese event if we hadn't been there. And thanks to KAIT who hosted a symposium on Project-Based Education after the event.

UTA has gone to every inaugural event in the UK, Australia, and now Japan. Our purpose in going to Japan was to let the local teams see the technology, fabrication and details of a competitive car, and to see it driven to the limits. We wanted to mentor the new teams and encouraged questions to help them learn.

We owe a special thanks to our sponsors, particularly to the A.E. Petsche Company, and to the school for support for our travel. Thanks also to Dr. Itoh who visited UTA for three months last year and who served as our guide during the first part of the trip. And thanks to all of the Japan Society of Automotive Engineers participants who put on a good show...well done!

With everything considered, it was a successful experience for our team and I think that the Japanese teams appreciated our being there to show them a competitive car that was well driven.



Top Three Winner: 1st - UTA,
2nd - Kanagawa Institute of Technology, and
3rd - Kokushikan University



UTA Team members who travelled to
FSAE Japan



FSAE Japan students inspecting the
UTA formula car

2004 Formula SAE – Japan

Hosting their second Formula SAE Japan competition, the Society of Automotive Engineers of Japan (JSAE) organized this year's event at Twin Ring Motegi from August 30th to September 2, 2004. Thirty schools from Japan, Korea, and the United States registered and attended the competition.

Taking first place overall in the competition was University of Texas Arlington with a score of 832.5; a 152.4 point lead over the second place winner, Kanagawa Institute of Technology finishing with 680.1 points. Kokushikan University was close behind coming in third with 677.7 points.

Twin Ring Motegi was an excellent and extremely scenic location for the competition. The endurance course was measured at 970 meters and, although some sections looked a little tight, fast lap times were in the area of 64 seconds.

SAE staff attended the competition to meet and work with the hosts, judges and other volunteers from Honda, Toyota, Nissan and other sponsors. The volunteers worked very hard to fully comply with all Formula SAE rules, policies and procedures. SAE hopes to continue assisting JSAE with the future of Formula SAE Japan.

To read more about the event and learn the results please visit <http://www.jsae.or.jp/formula/en/index.html>



Twin Motegi Race Track



SCCA Solo II Nationals 2004



Erick Kohler from UTA won the cup this year.

This year there were 12 entrants in FSAE with seven cars from 6 universities. We ran three laps on two courses over two days. The courses were challenging but were on the famous Topeka concrete that has about 1.6 g's adhesion without aero and over 2 g's with aero.

The competition was exciting each lap with one driver setting a good pace and another driver beating it. Texas A&M broke a chain the first day and only got one run for one driver. The second driver got a seat in the UTA car so he could have a time for the day. UMR blew an engine on the third run of the first day and drove home to replace the engine and were back for the second day.



UTA car in slalom on south course approaching 70 mph, over 1.6 g's and yes he missed the cone.

There were two entrants in the ladies class of FSAE. Jane Willis drove the UTA F04 car in FSAEL with Alexandra Fetterman in the KU car. Jane's time of 88.256 would have placed her in fourth in the open class. Jane again was observed with two wheels off the ground but not as much as last year. Results are posted at <http://ww2.scca.com/Solo.php>

Last year the FSAE car was the fourth fastest car at the event. This year, the FSAE car was the sixth fastest car at the event. This is the second year that FSAE has had its own class at nationals and was not forced to run with A-Mod. In recognition of FSAE becoming its own class, the SCCA Foundation started a perpetual award for the winner of FSAE and named it the "Dr. Bob Woods Cup". They placed a high importance on this award and presented it the first thing on the banquet agenda.

This is a great event for FSAE. We continuously had several people looking at our cars, asking questions, and being impressed by the technology of the cars, but more importantly, by the ambition and professionalism of these young engineers. This is an opportunity for teams to socialize, talk about the technical details of the cars, exchange ideas, and to enjoy pure racing without the pressures of FSAE at Detroit. If you didn't go this year, you missed out. We hope more people show up next year.

Visit <http://scca.org/Event/Event.asp> for further details.

After two days of racing, here are the driver's total times for both courses.

UTA F04	Erick Kohler	84.949
UTA F04	Jon Huddleson	87.116
UTA F03	Dr. Bob Woods	87.221
UMR	Mike Murray	88.415
TAMU	Jeff Stroh	89.467
TAMU	Vincent Shepherd	91.361
KU	Scott Schmidt	93.728
SDSMT	Cody Petersen	93.792
UIUC	Daniel Cummings	97.976
SDSMT	Steven Bickett	98.530
KU	Chris Zellers	98.794
UIUC	Justin Hoch	101.300



From left to right, is Kansas University, Texas A&M University, University of Illinois at Urbana-Champaign, South Dakota School of Mines and Technology, University of Missouri - Rolla, University of Texas at Arlington F03, and University of Texas at Arlington F04.

WIN with SAE International™

Join. Renew. Sponsor.

No matter which route you take, SAE membership is a winning proposition.

- New members win by becoming part of a student chapter and getting access to the benefits of SAE membership.
- Renewing members win by continuing your relationship with the society, to enhance your technical knowledge and career prospects
- Sponsoring members win by sharing the benefits of membership and strengthening your chapter.

Everyone has a chance to win great prizes – You are entered in our prize drawing when you join or renew, and get an additional entry for each new member you sponsor!

To be eligible, membership applications and renewals must be received by December 31, 2004

How to Enter

- Write your name and SAE membership number in the sponsor area at the top of the application on the back of this page
 - Make copies of the application
 - Give an application to everyone you know!
 - Ask new members to send in the application with their \$10 dues payment
- OR
- Ask prospective members to go online at students.sae.org, click on "Join now" and enter your SAE member number in the sponsor area. The more members you sponsor, the more chances you have to win these great prizes!*

*Void where prohibited by law. All SAE student members are eligible for this contest. You receive one chance in the drawing for each new student member you sponsor.

For more details and an application, visit <http://www.sae.org/students/studentpromo.pdf>

Great Prizes – Lots of Winners:

- 3 - iPods (20.0 GB storage)
- 1 - Nikon CoolPix 4.0 MP Digital Camera
- 1 - Palm One Handset Organizer
- 5 - Portable USB Hard Drives
- 10 - \$50 Best Buy Gift Certificates
- 10 - \$50 Gap Gift Certificates
- 10 - \$40 SAE Store Gift Certificates
- 100 - Hard-copy subscriptions to the SAE magazine of your choice: *Automotive Engineering International* or *Aerospace Engineering*

Another Chance to Win Free Registration for 2006!

SAE's Collegiate Design Series is once again holding the contest for Free Registration. All you have to do is submit an article to CollegiateCompetitions@sae.org in regards to your team. You can talk about what you have done in previous years, what you are planning for this year, if you have attended any conferences, held any competitions or worked with younger children, etc. The article is of your choice. All we ask of you is that you submit at least 500 words and some photos to compliment with the article. If we use your article, we reserve the right to edit as we choose and we will also put you in the drawing for FREE REGISTRATION. We will pick the winner after the end of the competition season in 2005.

Purdue Student Awarded Yanmar/SAE Scholarship



Jonathan W. Anders, a graduate student pursuing a Ph.D. in Mechanical Engineering at Purdue University, has been named recipient of the 2004 Yanmar/SAE Scholarship.

The scholarship is awarded annually to a student enrolled in a postgraduate engineering (or related science) program who is pursuing a course of study or research related to the conservation of energy in transportation, agriculture and construction, or power generation.

A resident of Lafayette, Indiana, Anders earned a Bachelor of Science degree in Mechanical Engineering from Purdue in 2001, and a Master of Science degree in Mechanical Engineering from Purdue in 2003. A member of SAE, he participated in Purdue's Formula SAE Car Team in 1998-99.

His Ph.D. dissertation work will concentrate on numerical simulation of fuel/air mixing in accelerating, decelerating, and pulsating reacting jets, focusing on the fundamentals of the near-field of the jet. He has held internships at Caterpillar, Inc., including experience in diesel engine fuel systems research and development, and in diesel engine simulation for control research.

The Yanmar/SAE Scholarship was established in 1989 by Yanmar Diesel America Corporation to assist students with their education and promote the philosophy of energy conservation. Applications for the scholarship are available at www.sae.org/students/yanmar.htm. The application deadline is April 1 of each year.

2004 Doctoral Scholars Announced

Three graduate students have been awarded loans through the SAE Doctoral Scholars program. The program provides funding to assist and encourage promising engineering graduate students to pursue careers in teaching at the college level.

Each recipient receives a forgivable loan of up to \$5,000 per year for three years. Upon completion of doctoral requirements, one year's loan is forgiven for each year the recipient teaches engineering at an accredited engineering school.

The 2004 Doctoral Scholars are:



David M. Arthur, currently completing his Master's degree in Mechanical Engineering at the University of Alberta, will begin pursuing his Ph.D. at the University of Cambridge in January 2005. A resident of Edmonton, Alberta, his Master's thesis focused on the use of hydrogen to extend the amount

of exhaust gas recirculation that a spark-ignition engine can tolerate, this improving efficiency and decreasing emissions. After completing his Ph.D, Arthur, a member of SAE, hopes to obtain a teaching position and become involved as a faculty advisor for the SAE Supermileage vehicle competition. "I believe it to be of utmost importance to be constantly looking at ways in which we can make transportation cleaner, more efficient, and safer," he says.



Edward M. Kasprzak is currently pursuing his Ph.D. in Mechanical Engineering at the University at Buffalo. Since 1995, he has been an engineer at Milliken Research Associates, and he co-authored Race Car Vehicle Dynamics: Problems, Answers and Experiments with Bill and

Doug Milliken. He is also an instructor in the University at Buffalo's Mechanical Engineering Department and a member of SAE. Kasprzak's Master's thesis was "Multivariate Optimization and Game Theory Applications in Vehicle Dynamics Simulations" and his doctoral dissertation will be "Extension of Nondimensional Tire Theory to General Operating Conditions." A resident of Tonawanda, New York, he is the advisor for the University of Buffalo's Formula SAE team.



Eric A. Kennedy is pursuing his Ph.D. in Mechanical Engineering at the Virginia Polytechnic Institute and State University (Virginia Tech). He has worked as a Research Assistant at Virginia Tech's Center for Injury Biomechanics, Impact Biomechanics Laboratory since 2002. A resident of Christiansburg,

Virginia, Kennedy received his M.S. in Mechanical Engineering from Virginia Tech in 2004, and his B.S. in Mechanical Engineering from the University of Maryland in 1999. A member of SAE, he has worked on numerous research projects in which mechanical engineering principles are used to understand the mechanics of the human body, in order to design safety equipment that can significantly reduce injuries.

The Doctoral Scholars Forgivable Loan Program is sponsored by the SAE Foundation. Applications are available on the SAE website at www.sae.org/students/docschol.htm. The application deadline is April 1 of each year.

Recognize Achievement • Reward Leadership

SAE *International*[™] **Leadership Development Program**

SAE new program designed to recognize and engage engineering student leaders who have exhibited outstanding leadership skills through SAE student activities. Those selected to participate in the program will attend an all-expenses-paid, two-and-a-half day event in San Antonio, Texas during January 2005. The event will be held in conjunction with the Section Officers Leadership Seminar and the SAE Board of Directors Meeting -- giving the future leaders of SAE a chance to network with SAE members who influence both SAE and vehicle engineering industries.

The program agenda will include:

- team building exercise
- networking with Section leaders
- professional development sessions on leadership skills
- A World In Motion exercise (encourage involvement through volunteering in a classroom)
- career development session (resume assistance, how to land a job, interviewing tips)
- speaker to discuss future of mobility industry
- self-assessment activity (evaluation of career interests, strengths and weaknesses)
- fun evening activities and/or entertainment

Eligibility

All nominees must be SAE student members and either a team captain for one of the SAE Collegiate Design teams or an officer of their SAE Collegiate Chapter. Nominees must be in their junior or senior year of their undergraduate degree or currently enrolled in a graduate degree program. Nominees must plan to pursue a career in the mobility industries that SAE serves.

Nomination Process

Nominations must be submitted by either the faculty advisor of the SAE Collegiate Chapter or an officer of the local Section. A detailed explanation of the student's leadership activities and skills must be provided as well as an explanation of the student's involvement with SAE.

Nominations are due by October 29, 2004
www.sae.org/leadershipdevelopment

The SAE Leadership Development Program is part of



New SAE Online Career Center

Coming September 30, 2004, SAE's new online Career Center will connect qualified SAE members with employers and recruiters in the mobility industry. SAE members get exclusive access to internship and job postings, apply for jobs online, upload their resume, confidential postings, free job alerts, and more. Employers or recruiters wishing to purchase job postings or search the database do not have to be SAE members and can post jobs 24/7 at the Career Center, search the database by category, job function, or keyword, receive candidate alert updates, and more. Check it out at <http://careers.sae.org>.

The Career Center is part of SAE's new PowerTrack program that incorporates new and existing SAE products, services, and programs into a roadmap an engineer can follow to accelerate their career. PowerTrack was developed with the young, or entry to mid-level, engineer's needs and interests in mind. PowerTrack begins with the A World in Motion Program in elementary school and continues through college into the beginning and development of a career as an engineer. Whether you're a K-12 student or teacher, college

The screenshot shows the SAE Career Center website in a browser window. The URL is <http://www.autoengineeringcareers.org/>. The page features the SAE International logo and navigation tabs for Membership, Events & Education, Publications, Standards, and Forum. A search bar is visible on the left. The main content area is titled "SAE Career Center" and includes a "Find a job. Find an employee. Find it here." message. Below this, there are two columns of links: "SAE Members" (Search Job Listings, Post or Update your Resume, Job Alert Service, Career Resources & Development, Networking Resources) and "Employers & Recruiters" (Post a Position, Search Resumes, Candidate Alert Service, Job Posting Packages, Resume Access Packages, Account Information). A "Latest Jobs" section lists roles like Engineer, Global Vice President of Sales & Marketing - Auto, Staff Engineer - Engines, and Account Engineer II. A "Career Center News & Events" section lists upcoming conferences.



WASHINGTON INTERNSHIPS FOR STUDENTS OF ENGINEERING

Summer Program on Engineering and Public Policy - June 6 to August 5, 2004

APPLICATION DEADLINE

10 DECEMBER 2004
(postmarked)

For application forms and
more information, go to:

[http://www.wise-
intern.org](http://www.wise-intern.org)

WISE Program
c/o IEEE-USA
1828 L Street, N.W.
Suite 1202
Washington, DC 20036-
5104
Tel: 202.785.0017
Fax: 202.785-0835
E-mail: [info@wise-
intern.org](mailto:info@wise-intern.org)

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The Washington Internships for Students of Engineering (WISE) program offers a unique opportunity for eligible engineering students to spend a summer in Washington learning how government officials make decisions on complex technological issues and how engineers can contribute to legislative and regulatory policy decisions.

Throughout the nine weeks, students will meet with leaders in the Congress and the Administration, prominent non-governmental organizations, and industry. In addition, each student prepares a paper on a current engineering related public policy issue that is important to their sponsoring society.

Interns work under the guidance of an engineering faculty-member-in-residence and are mentored by their sponsoring society.

Interns receive a \$2100 stipend, a local travel allowance, and housing in the George Washington University dormitories.

Applications for WISE are sought from outstanding engineering students who display evidence of leadership skills and have a keen interest in public policy. Applicants should be undergraduate engineering students (juniors or seniors) or recent graduates beginning study in technology policy-related Master's program. Applicants must be citizens or legal permanent residents of the United States. Minority students are encouraged to apply.

Interested students must apply directly to one or more of the sponsoring societies of which they are a student member, using the application form provided at <http://www.wise-intern.org>.

WISE Alumni on WISE

"WISE helped me learn how the public policy arena is set up and operates, how technology, economics, and public policy work together."

"I had the most amazing summer of my life, and in a lot of ways, I wish it would never end."

"WISE was exactly what I had hoped for in terms of exposure to engineers in the public policy arena. It really opened my eyes to the possibilities for engineers outside of the traditional corporate setting. Whether or not I pursue a career with a public agency, I know this experience has made me a better engineer who is more in tune with the 'real' world of politics and government."

"The summer I spent in the WISE program was extremely influential on my career path. It gave me new insights into the types of career opportunities that could combine my interests in technology and public policy."

SAE International™

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Get ready for the racing industry's premiere high-performance technology event!

2004 Motorsports Engineering Conference & Exhibition

November 30-December 2, 2004
Dearborn Hyatt
Dearborn, MI, USA

Plan to attend the industry's premiere high-performance technology event - the 2004 SAE Motorsports Engineering Conference & Exhibition. From its opening **keynote address by Max Mosley**, President of the FIA, the global sanctioning body for Formula 1, to its closing historical session covering the Golden Age of the CanAm series and the legendary confrontation between Henry Ford and the Wright brothers, the SAE Motorsports Engineering Conference breaks new ground.

Developed around the theme, "Change for Relevance," **the Executive Business Panel brings together for the first time the heads of the leading racing sanctioning bodies: FIA, Sportscar Club of America, NASCAR, the IRL, and the National Hot Rod Association** to discuss the challenges facing racers, track owners, and sanctioning bodies - providing exciting racing and competitive fields, controlling the high cost of racing, and assuring the safety of drivers, crew, and spectators.

Also for the first time, the **Conference will take an in-depth look at the business and technology achievements of the extreme sports of Motocross and Snocross** in two sessions scheduled for Wednesday, December 1. Other panels cover safety, engine and drivetrain, and vehicle design and development. A special event for young engineers interested in a career in racing is the **Young Engineers Panel, in which professionals will talk about the skills needed to work in racing and the best opportunities to find these sought-after jobs.**

Another highlight of Wednesday is the SAE Motorsports Engineering Conference Banquet, featuring a speech by **Neil Ressler, former head of Jaguar Racing and Vice President of Ford Motor Company. Herb Fishel, CEO, The Business of Motorsports**, is serving as honorary general chair and will provide the Opening Remarks on Tuesday, November 30.

Rounding out the event is an extensive program of technical sessions covering all aspects of racing from aerodynamics to engines, and an exhibit of many new products and services for race teams, plus racing vehicles of interest to all attendees.

Attend-Exhibit-Sponsor

To register, or for more information:

- Online: www.sae.org/msec
- Phone: 1-877-606-7323
(US and Canada only),
1-724-776-4970
- E-mail: CustomerService@sae.org

To exhibit or sponsor, contact
Doug Shymoniak at 724-772-4081
or e-mail shymonik@sae.org

Publications, seminars, technical papers and more - Find it all at motorsports.sae.org

Essential Resources for SAE Student Members

Order these products on the enclosed SAE membership renewal form today!



Advanced Engine Technology

ID# R-163; \$55.96

A comprehensive reference for anyone wanting to study the way in which modern vehicle engines work, and why they are designed as they are. This book covers virtually all configurations of commercially-produced engines, and features the latest engine technology—including up-to-date coverage of electronic engine management and exhaust emission control.

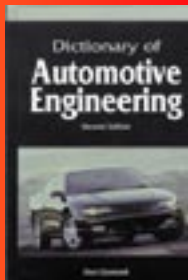


Automotive Handbook

5th Edition

ID# BOSCH5; \$36.00

For years, this handbook has been considered the most indispensable reference for automotive engineers which includes comprehensive coverage of over 225 automotive-related subjects and over 1,000 illustrations, diagrams, tables and sectional drawings.

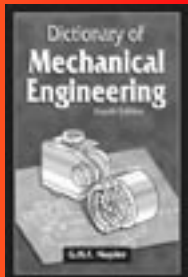


Dictionary of Automotive Engineering

2nd Edition

ID# R-159; \$55.96

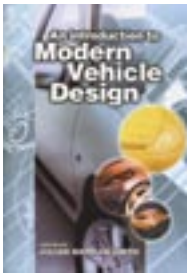
Complete coverage of over 3,000 terms and over 100 detailed drawings currently used in automotive engineering worldwide is included in this revised book. This thorough technical reference defines the terminology of the professional engineer, and also includes the more informal vocabulary common in industry use.



Dictionary of Mechanical Engineering

ID# R-156; \$55.96

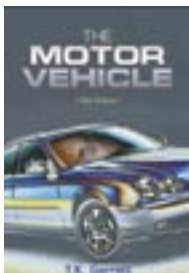
This reference book provides clearly-written, easy-to-understand definitions for over 4,500 items. In addition to covering the more traditional areas of the field, this new edition also defines the terminology of the rapidly advancing areas of "small size" mechanical engineering – micromachining and nanotechnology.



An Introduction to Modern Vehicle Design

ID# R-295; \$55.96

This book starts from basic principles and builds up analysis procedures for all major aspects of vehicle and component design. Subjects of current interest to the motor industry – such as failure prevention, designing with modern material, ergonomics, and control systems – are covered in detail, with a final chapter discussing future trends in automotive design.



The Motor Vehicle

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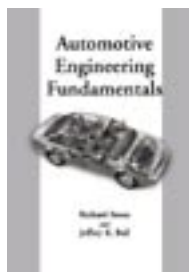


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