



Collegiate Design Series News

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NEW YORK, NEW YORK: BUFFALO, CLARKSON TAKE TOP TWO SLOTS IN CLEAN SNOWMOBILE CHALLENGE AT MICHIGAN TECH

Marcia Goodrich, Media Relations Manager
University Communications, Michigan Technological University

HOUGHTON, Mich.--Two teams from New York State clinched the silver and gold in the 2005 SAE Clean Snowmobile Challenge, hosted for the third year in a row by Michigan Technological University. The State University of New York at Buffalo took first place, with Clarkson University, in Potsdam, placing second.

The Clean Snowmobile Challenge is the Society of Automotive Engineers' newest collegiate design competition. Teams of engineering students from participating schools take a stock snowmobile and then reengineer it to reduce emissions and noise while maintaining or improving performance.

The University of Wisconsin at Madison finished third, with the University of Maine taking fourth place and Kettering University in Flint, Mich., finishing fifth. Thirteen teams competed in the event.

The SUNY Buffalo team took the Challenge's mandate to heart. "We tried to focus on the Challenge's three main objectives: emissions, sound and performance," said team captain Brian Belmont. To those ends, they started with a Honda Silverwing, 600-cc, four-stroke engine; turbo-charged it; and mounted it in a Polaris chassis.

"Then we did lots of sound and emissions tests to achieve our goals," he said. "We were confident that we'd built a good machine, and we knew it would be among the top sleds, but we were surprised to be first."

Buffalo also took the Gage Products Award for Best Fuel Economy; the Land and Sea, Inc. Award for Best Performance, given to the team that performs best in the acceleration and objective handling events and passed the noise and emission tests; and the Blue Ribbon Award for Most Practical Solution, based on the best balance between noise and emission reduction and cost.

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Clarkson and Buffalo tied for the PCB Group Award for the Quietest Snowmobile. Clarkson nabbed the SAE Award for Best Design, based on written paper, oral presentation and static display scores; and the DENSO International America, Inc. Award for Best Ride.

The University of Wisconsin at Platteville aced the performance events with their two-stroke sled, receiving the U.S. Army TACOM/National Automotive Center Award for Best Handling and the International Engineering and Manufacturing (Woody's) Award for Best Acceleration.

The University of Wisconsin at Madison, which competed with an innovative gas-electric hybrid engine, earned the Lotus Engineering, Inc. and Horiba Instruments, Inc. Award for Lowest Emissions.

The University of Maine received the Emitec Award for Best Value, for achieving the best balance between cost, fuel economy and performance.

Event organizer Jay Meldrum, director of MTU's Keweenaw Research Center, said that the teams just keep getting better. "Everybody was much cleaner than last year," he said. "The designs are much more mature, the sleds were better built."

That only comes with time, he added. "You can't do this in a year."

Possible changes on tap for next year's Challenge, which will be held at KRC's winter testing facility, will be a separate category for all-electric sleds such as McGill University's. McGill impressed officials with its quiet operation but was unable to complete the noise test, which requires entries to travel between 35 mph and 55 mph through the test area.

In any event, Buffalo plans to be back.

"We had a great competition; we had fun," team captain Belmont said.

"And we can't wait to do it again next year."

The SAE Clean Snowmobile Challenge is sponsored by the Keweenaw Research Center and Michigan Tech's Department of Mechanical Engineering-Engineering Mechanics. For more information, visit <http://www.mtu.edu/snowmobile>.



2005 Robot Systems Challenge

Same City - Same Dates - New Host

We are pleased to announce that the 2005 Robot Systems Challenge will remain in Montreal - and is still on the same dates April 28 to 30 - but will now be hosted by École Polytechnique de Montréal and organized by Pascal Blanchette.

So only two changes in the competition: 1) we are moving across Montreal to the École Polytechnique campus. The schedule remains unchanged and all the competing teams should continue with their participation plans. 2) With the change of location, please note that technical papers should be emailed to the new organizer Pascal Blanchette, pascal.blanchette@polymtl.ca and SAE staff member Kaley Shellhammer, shellham@sae.org by the April 12th deadline. Teams have until midnight Eastern Standard Time to submit the papers!

You'll find a campus map on line at www.polymtl.ca/outils/outils/carte.php

If you are using the Montreal metro you'll find the university at the "Université de Montréal" station. Metro maps are available on-line at www.stm.info.

If any teams require parking space, please let Pascal know by April 8.

Attending the event this year is 6 registered teams:

002	Universidad Bonaterra	UBrobotics
004	Universidad Panamericana Sede Guadalajara	TITAN
011	Ecole Polytechnique De Montreal	SAE Robotique
012	ITESM Campus Edo. México	Robot Systems - CEM
013	Instituto Tecnologico de Linares	ASTEKAS
014	ITESM	Metal Ikarus

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>.

2006 Competition Registration

Registration for 2006 events will open Monday, October 3, 2005 at 10:00 am Eastern Standard Time. Unlike this year and previous years, registration for all competitions will close December 31, 2005 at midnight EST. Mark your calendars!!! And start preparing your team for next year!! Remember competitions with registration limits may close much earlier.

2005 Formula SAE Site Procedures

After reviewing the suggestions you made on last year's post-Formula survey we've implemented a number of changes to make the competition run smoother and to improve our communications. You'll notice a number of obvious improvements although we've made others that are more subtle.

The following operating procedures will be in effect:

Paddock Assignment

Paddocks will be assigned as teams enter at the main gate. At that point you will also be given a registration package containing all the material your team needs for on-site registration.

The main gate opens Wednesday at 8:30 am. Since the first activity, early tech inspection, doesn't start until 4:00 pm there's lots of time for everyone to get set up and register.

Keep in mind that each paddock space is 17' x 34.5' which is equivalent to 4 standard parking spaces. As in the past we may be able to accommodate a few larger trucks **IF** you tell us what you are bringing and we approve it in advance. Big rigs can not be accommodated. **Teams that are bringing a rig that exceeds 35' in length must notify Kathleen McDonald at katklauz@aol.com no later than April 15.**

Once you reach your paddock you should complete the registration material (discussed in the next section) and proceed to on-site registration. Team members may not work on the car, or operate tools or machinery, until they've finished on-site registration, signed the required waiver and been issued wrist bands.

Competition vehicles must remain within the event site and may not be moved back-and-forth between the paddocks and a support vehicle outside the site. The only exception to this policy is that a vehicle may be taken to the GM shop if for some reason the entire car, rather than just components, is required.

Registration Package

The registration package you receive at the gate will include:

- (1) **Liability waiver** – All team members and the faculty advisor must sign the waiver in ink.
- (2) **Information sheets** – You **won't** need to complete this form if you made your own.
- (3) **Schedules** including those for design judging, cost judging and presentation
- (4) **Site maps** including the overall site, paddocks, Wednesday & Thursday static events, Friday dynamic events and Saturday dynamic events. The site maps will include the location of staging areas and lines.
- (5) **Event descriptions**
- (6) **Supplier and restaurant lists** with maps.

On- Site Registration

On-site registration will open Wednesday at 9:00 am.

Before coming to the registration desk your team must complete the following:

- (1) **Liability waiver** – The waiver is in the registration package.
- (2) **"Do-it-yourself" information sheets** – These are the sheets of driver's license and insurance card copies that we discuss on page 6 of this month's Collegiate Design Series Newsletter. Either bring the "do-it-yourself" information sheets you've created or, if you like more work, fill out the information form provided in the registration package.

Registration will go faster if all team members register in a single group. Please try to have your entire team come up simultaneously.

If you don't bring all of your forms and documents with you then we may ask you to come back later.

Beginning this year all team members must have and provide proof of medical insurance. This

is a change from the previous requirement that only drivers needed insurance. In order to comply with new directives from our insurance carrier we must confirm that all participants have medical insurance ... so make sure all your team members are insured. Wrist bands will be issued to all team members upon completion of the forms

Reminder: All team members must be members of SAE. If you have any members who have not joined please have them do so on-line before the event at <http://www.sae.org/servlets/membership/>

Technical Inspection

Due to limited space inside the tent, only four (4) team members will be permitted inside the technical inspection tent during the Wednesday and Thursday inspections. Other team members, the Faculty Advisor and spectators will be required to watch from the periphery of the tent. Tool boxes and rain tires must also remain outside the tent. The team's 4 dynamic area passes will also be used as technical inspection tent passes. Team members may rotate in and out of the inspection area as required, as long as there are no more than four in the tent at one time.

All drivers must be present at technical inspection with their helmets, suits, etc., during inspection for confirmation of the driver's gear, roll hoop clearance and driver escape requirements. The technical inspectors will select one or more drivers, at the inspector's discretion, for the various drivers' compartment tests.

Early technical inspection will run from 4:00 to 8:00 pm on Wednesday. The inspectors estimate that they should be able to do complete first inspections on between 70 and 80 cars during that time. We will designate a "line closed" point at roughly 7:00 pm so that teams at the end of the line will know to return on Thursday morning.

Operations

Better maps and signage – We'll be posting site maps at several prominent locations and we're adding additional signs that will make it clearer where to go and where the queues form for every event.

Paddock list – Once all the teams have been positioned in the paddock we'll generate a complete paddock list that will be posted and copies made available.

Line opening and closing times – Line opening and closing times will be based on the official event time maintained by the very popular "announcer dude". Times will be announced over the public address system and will be strictly adhered to by the event officials. Both acceleration and skid pad operate with a strict closing time policy – specifically, a team must have crossed the

starting line by the official closing time for the attempt to be scored. Simply being in the staging line is not enough – your car must have at least started its run.

There's more than enough time for every team to make all of their acceleration and skid pad runs if every team gets in line promptly and doesn't wait.

Weather emergencies – A reminder: If we have a weather emergency, which we all know has occasionally happened, and we are asked to evacuate the site, everyone must immediately follow the official instructions. This is not optional – if we announce that the site has to be cleared, go and go quickly.

Bull Horns – We're bringing some bull horns to help us make announcements in places not reached by the PA system.

In-line adjustments – Traditionally teams have been permitted to make minor adjustments and do some fine tuning while in line or near, practice, brake testing, noise testing and dynamic events. You can still do minor adjustments near those areas with the following slight policy adjustments: (1) some events may designate a specific area for such work, and (2) if what you're fixing takes longer than about 10 minutes then you may be asked to do the work in your paddock. Our goal is to keep the various queues moving smoothly – and the event areas relatively open - so individual event captains have complete discretion to decide how much work to permit and where it may be done. **Bottom line: If there aren't a lot of cars in line you'll probably be able to do more work, if the line is full then you'll probably have to work in your paddock.**

Power cables – Reminder: Under no circumstances may you lift or move any power cable! Last year some teams lifted cables to move their cars underneath. We know cars can bottom on the cables, but the solution is go around the end of the row not to lift the cables.

Cooking at Formula Event Site – There is no cooking permitted in the paddocks. The designated area for BBQs is just outside of the Butler Building, which is the cinderblock garage in the West Parking lot, just inside of Gate 5.

Teams may only use propane grills (per the Silverdome's rules). Per the rules of the Silverdome, charcoal is prohibited. BBQs must be attended at all times. This information will be reviewed at the Team Captain's meeting on Wednesday, May 18, 2005.

Simplified On-Site Registration for ALL Competitions!!

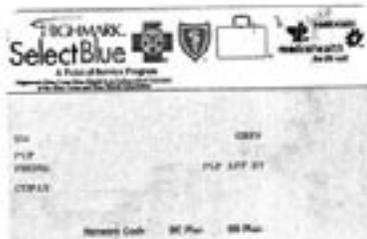
On-site registration at all Collegiate Design Competitions is being simplified to make the process quicker and easier. Starting this year, there will be only 2 required forms. First – The liability waiver which must be completed and signed by all participants. Second – The new team record sheets which **YOU** create and bring with you to the event.

Team record sheets are just copies of each team member's driver license and insurance with their emergency contact information written below the cards. It is simple and should be relatively easy to create. The layout to the right shows what we have in mind, although we don't care how many members you include on each sheet – just make sure that you have all the information present.

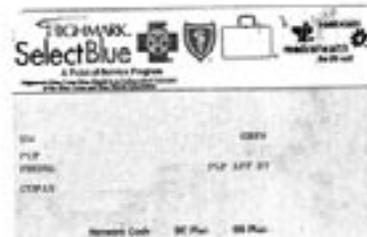
If you don't create the team record sheets covering all the team members, then you will be required to fill out forms on-site which will take time and cause your registration to be delayed.

If you have any questions about this improved process, please email collegiatecompetitions@sae.org.

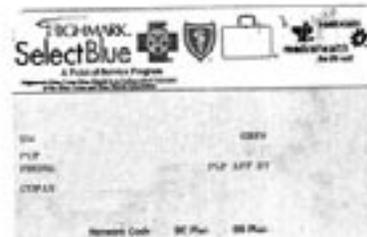
University Name, Car # and Contact Cell Phone #



*Emergency Contact: Name + phone number
(relationship)*



*Emergency Contact: Name + phone number
(relationship)*



*Emergency Contact: Name + phone number
(relationship)*

Special Offering for 2005 FSAE Students!

Tires and Handling for Racing and High Performance Vehicles

Taught by Paul Haney, acclaimed tire expert and author of *The Racing & High Performance Tire*

Monday, May 23, 2005; 8:30 a.m. to 4:30 p.m.

SAE Automotive Headquarters

755 W. Big Beaver Road, Top of Troy Building, 16th Floor, Troy, MI

Fees: \$195, Students; \$495, SAE Mbrs; \$595, Non-Mbrs

Overview

The pneumatic tire is extremely complex and not well understood. Automotive and race engineers are forced to rely on experience as well as trial and error methods when trying to get the most from their vehicles.

Capitalizing on the instructor's 20-year struggle to understand how tires work on a car, this seminar provides a practical applied approach to understanding how a car gets around a corner, rubber friction, tire behavior, and basic vehicle dynamics. While the information presented explains tire technology and vehicle dynamics in general, the seminar uses racing and high performance settings to illustrate the major points.

Benefits of Attending

By attending this seminar, you will be able to:

- Explain how a tire develops a slip angle and develops a lateral force enabling a car to turn a corner with speed and control.
- Describe rubber friction and rubber's sensitivity to temperature, sliding speed, surface texture, and vertical loading.
- Illustrate how tires and vehicle dynamics influence car's balance and control.
- Summarize the importance of inflation pressure and how to use temperature measurements to find the best pressure.
- Judge how to choose basic starting spring and anti-roll bar rates and develop them toward an optimum setup.

Who Should Attend

Anyone involved with racing and high performance driving as well as engineers involved with tire design, tire testing, or chassis/suspension development. While no technical background is required, attendees are encouraged to have a basic understanding of high-school-level math and physics.

Seminar Content

- How a Car Turns a Corner
 - How a tire generates lateral force with slip angle
 - How lateral force and slip angle allow a vehicle to turn a corner with control at high speed
- Rubber & Rubber Friction
 - Brief history of rubber and its unique characteristics
 - Complexity of how rubber interacts with a surface to produce friction forces
 - Rubber's sensitivity to temperature, sliding speed, surface texture, and vertical loading
 - The real reason there's more grip off-line in the rain
- Rubber Compounding
 - Rubber choices; the complex nature of tires starts with rubber.
 - How carbon loading and the vulcanization process modify rubber characteristics
- Tire Design and Manufacture
 - How tires can be flexible but strong while describing some design goals and structural variables
 - Why inflation pressure is so critically important to tire performance and reliability
 - How a tire generates heat as it rolls
- Tire Behavior
 - How a tire produces lateral force and turns a car
 - Importance of camber thrust, induced drag, aligning torque, the friction circle, and load sensitivity
 - The real reason wide tires produce more grip
 - Why tires are load sensitive and how that affects suspension trade-offs

- Balance and Control
 - Understeer and oversteer
 - How good drivers maintain control at the limit of adhesion
- Race Tires
 - How to take tire temperatures
 - Scrubbing, blistering, and graining
 - How to find the right inflation pressure
 - Typical data provided by tire manufacturers to race teams—how useful is this data?
- Basic Vehicle Dynamics
 - Physics of a car in a corner
 - Lateral and longitudinal weight transfer
 - Suspension antis
 - Importance of roll centers and how to calculate the different components of lateral weight transfer.
- Tuning for Grip and Balance
 - How to tune a racecar one level at a time
 - Difference between spring rate, wheel rate, and tire rate
 - How to choose initial spring rates, anti-roll bar rates, and roll center locations
 - Geometric stiffness and why it is so important
 - Importance of wedge and how both anti-roll bars and dampers produce wedge effects that help balance a car and generate grip
 - Sequence of tuning changes and how those changes affect tire contact patch forces
 - Why a front anti-roll bar is so useful

About the Instructor

Paul Haney attended drag races and sports car races in Texas in the 1950s. This began an intense interest in motor racing that led to an engineering degree followed by several decades in the aerospace, materials, and electronics industries.

During the 1980s Paul became involved in racing, working for several racing businesses and writing for motorsports publications. Paul has published three books and now offers a web site, www.insideracingtechnology.com. Paul's latest book, *The Racing & High-Performance Tire*, co-published with SAE in April 2003 is the result of 20 years trying to figure out how tires work and how a car uses them to get around a corner.

Paul now works with race teams and presents seminars on tires and racecar tuning that explain how tires work on a car and how to approach chassis setup with the goal of optimizing tire usage for traction and driver control.

A member of the planning committee of the SAE Motorsports Engineering Conference and Exhibition, Paul chaired the MSEC vehicle committee in 1998. He holds a B.S. in mechanical engineering from Southern Methodist University.

To Register

For complete registration information, visit www.sae.org/seminarinfo or call SAE Customer Service at 877-606-7323 (U.S. & Canada only) or 724-776-4970. Fee includes all learning materials, lunch, and refreshment breaks. Reference ID# C0517. CEUs: .65.

Cancellations

If you cannot attend, you may send a substitute or transfer to a future offering. A full refund is issued if you notify SAE at least 14 days prior to seminar start date. If canceled less than 14 days prior, the full fee is charged. For \$50, you may process a one-time transfer to a future offering within one year of canceled seminar. SAE reserves the right to change instructors or cancel seminars and cannot be held responsible for costs incurred other than the registration fee.

Sponsored Awards for 2005 Aero Design events

East – April 8-10 • Deland, FL

Open Class - Sponsored by Gordon Millar

- **First Place \$1000**

Regular Class – Sponsored by Dorothy and Elliot Green

- **First Place \$1000**
- **Second Place \$750**
- **Third Place \$500**

Micro Class – Sponsored by SAE

- **First Place \$500**

West – April 22-24 • Ft. Worth, TX

Open Class – Sponsored by SAE

- **First Place \$1000**

Regular Class – Sponsored by Dorothy and Elliot Green

- **First Place \$1000**
- **Second Place \$750**
- **Third Place \$500**

Micro Class- Sponsored by SAE

- **First Place \$1000**

Organizers have also created awards to be given at the competitions!

RESUME EVALUATION ON SITE AT AERO DESIGN WEST

Bring your resumes with you to the Aero Design West competition. An expert from the Aerospace Industry will be on hand Friday Afternoon April 29 to evaluate resumes. This expert will critique, evaluate and give comments on how to improve your resume. Take advantage of this unique opportunity. If you have any questions, feel free to contact Sam Barill at 724-772-4046 or barill@sae.org

Taking the Oregon WAVE to the California Desert, or, "Look Mom, no driver!"

Submitted by Bob Paasch, Faculty Advisor at Oregon State University

The Oregon WAVE (Willamette Valley Autonomous Vehicle Enterprise) is an Oregon State University based team of engineering faculty, students, and local engineering professionals with their eyes on a \$2 million dollar prize: the one attached to winning the 2005 Defense Advanced Research Projects Agency (DARPA) Grand Challenge. This 175-mile race across the southwestern desert takes place next October and is designed especially for autonomous robotic ground vehicles—in other words, for cars with no drivers. Vehicles run this course entirely without human intervention (including any kind of remote control). The machines make all navigational decisions entirely on their own, based on the data provided by their onboard sensors.

For its Grand Challenge entry, the WAVE is outfitting the 2003 OSU SAE Mini Baja car (shown at right in the accompanying picture) with terrain sensors and control systems. The 2003 Mini-Baja car was selected by the WAVE team because it's a proven off-road platform, the original design placing second in the 2003 Mini-Baja West endurance race and, in current form, first in the 2004 Mini-Baja West endurance race. The car has been modified with servo controlled steering, throttle, brakes and transmission (forward/reverse) control. Additional planned mechanical modifications include replacing the Briggs and Stratton Intek engine with something a little more powerful, and adding a fuel cell to get the required 175 mile range.

The WAVE computing team is currently developing the suite of algorithms that the vehicle will use for path planning, obstacle avoidance, and guidance, navigation, and control. The WAVE's goal is to create a vehicle that "embodies simple, elegant engineering and makes efficient use of power and weight."



Technology Transfer Comes to Life at Colorado State University

When the Society of Automotive Engineers (SAE) first introduced the Collegiate Design Series in the 1970's, the organization had no idea of the positive impact it would have—not only on participants, but the entire world. Through technology transfer, students are taking their inventions to nations around the globe.

Technology transfer moves discoveries from the research bench into the commercial sector, bringing ideas to life with the help of patenting and licensing procedures. The process touches all paths of life including healthcare (medication discoveries), transportation (guardrails) and homeland security (protective, disposable garments).

Bryan Willson, professor of mechanical engineering, Colorado State University, and a member of the SAE Collegiate Board, and his 2002 Clean Snowmobile Challenge team are just one of the many technology success stories to come out of the Collegiate Design Series.

The Challenge invites budding engineers to reconstruct an existing snowmobile to improve emission and fuel effectiveness as well as decrease noise pollution, all while maintaining or improving performance and cost effectiveness of the machine.

Not a small feat for engineering students, but Bryan's team managed to design a snowmobile that exceeded all criteria. They installed a new type of fuel injection and a catalytic converter to reduce pollutants. A new muffler lowered noise, and an improved suspension and redesigned seat and handlebars made for a more comfortable ride.

While the average snowmobile enthusiast may only be interested in the smoother ride, developing countries were curious to find out about the discoveries.

"Much of the pollution emitted in developing countries is produced by traditional two stroke engines similar to those used in snowmobiles," explains Bryan. "We developed a cost-effective, two-stroke engine that has the potential to significantly decrease pollution, which in turn, can improve quality of life."

Agencies in India and West Africa approached Bryan and the team to discuss the new engine, and CSU representatives visited Washington, D.C. to discuss possible applications for use of the technology in developing countries.

Like most others involved with technology transfer, Collegiate Design groups hold the details of their discoveries close to their vest so as not to reveal their secrets. But advancements from groups like Bryan's Clean Snowmobile Challenge team are changing the way that people in all corners of the world live--forever.

TOP FORMULA SAE STUDENT TO EARN DR. BOB WOODS CUP AT SOLO NATIONALS

TOPEKA, Kan. (Aug. 30, 2004) - Sports Car Club of America's Foundation announced today the creation of the Dr. Bob Woods Cup, honoring the accomplishments and success of Formula SAE college students in The Tire Rack(r) SCCA Solo National Championships, held this year Sept. 14-17.

Named in honor of Dr. Bob Woods, of the University of Texas, Arlington, the Cup will be presented to the highest-placing student driver in the Formula SAE (FSAE) class of The Tire Rack SCCA Solo National Championships. FSAE is a class for Formula SAE competition automobiles, designed, built, maintained and raced by college students in association with Society of Automotive Engineers (SAE).

"Formula SAE would not be what it is today without Dr. Bob Woods' vision and his passion to 'make it happen,'" Bob Sechler, manager of educational relations for SAE said. "SAE truly appreciates all he has done for Formula SAE and the important role he has played in establishing a strong partnership between SAE and SCCA."

Dr. Woods has been crucial in forming and building the relationship between the FSAE program and SCCA, which sanctions its annual Formula SAE competition in Michigan, and created a FSAE class in The Tire Rack SCCA Solo Nationals beginning in 2003.

The Dr. Bob Woods Cup will be a perpetual trophy to be kept on display at SCCA's National headquarters in Topeka, Kan., with keepsake awards going to the individual recipient and the school that person represents. The Cup is funded through the SCCA Foundation, as part of its community outreach program.

For more information about The Tire Rack SCCA Solo National Championships, please visit www.scca.com. For more information about Formula SAE and SAE, visit www.sae.org.



From the Classroom to the Boardroom: Collegiate Design Series Builds Leaders

When Jennifer Goforth, program director for A World In Motion® (AWIM) at General Motors (GM), entered Wisconsin's Marquette University, she had no idea that testing jet skis in sunny Florida and building cars in Germany would be in her future. But encouraging words from a high school counselor and a few semesters spent building Formula SAE® cars set Jennifer on the fast track for success in manufacturing engineering—a career she would have struggled to break into without the help of the Collegiate Design Series.

"Through the Collegiate Design Series I discovered that working with my hands is what I love to do," says Jennifer. "And being on the Formula SAE team opened doors for me. Some of my friends had a difficult time finding jobs without that real-world experience."

SAE's Collegiate Design Series is open to undergraduate and graduate students as well as some high school students. Building and racing radio-controlled aircraft, rally cars and environmentally responsible snowmobiles are just a few of the challenges that give amateur engineers the opportunity to put their classroom knowledge to work while giving them a leg up on competition when vying for jobs.

Ready for the Future

Jennifer's hands-on experiences with Formula SAE® and a college co-op helped her land jobs as a Mercury Marine project manager building jet skis. At GM, she has worked her way through the ranks as line supervisor and department manager, manager of general assembly, and international production development team assistant, which landed her in Germany for a year.

The love of her profession and her loyalty to SAE have allowed Jennifer to accept one of the most fulfilling career positions to date. As GM program director for AWIM, she coordinates nearly 800 GM classroom volunteers and even volunteers in the classroom herself. While giving children role models they may never get elsewhere, she is also shaping how those kids view engineers and engineering.

Much like Jennifer, Eric Webber, event engine engineer, Mitsubishi Motors Motorsports Ltd. (MMSP) and fellow Collegiate Design participant at Rochester Institute of Technology (RIT) says his professional experiences were broadened because of involvement in SAE.

"For me, it was always about cars. My parents would get me out of school for rally team races, and the Formula SAE program at RIT factored into my college decision," says Eric. "But you find the path you want to take once you're intimately involved."

It was at a Formula SAE competition that Eric met a Honda representative who invited Eric for an interview in California. A long way

from his hometown of Moon, Pa., Eric thought he landed his dream job—until MMSP came calling. Well, actually, it was Eric who called, but he still managed to earn a job designing, testing and inspecting rally car engines around the world.

Robert (Bob) Sechler, manager of Education Relations at SAE, says that companies such as GM and MMSP recruit Collegiate Design alumni because of their real-world engineering experience.

“They have the hands-on experience under their belt,” says Bob. “It’s also about the soft skills that you can’t get in the classroom; the leadership and communication skills. We’re following these kids, and they’re on the fast track within their companies.”

Designing Tomorrow’s Engineers

“There is very little real-world application to math and science in the classroom, and kids are turned off by that,” explains Jennifer. “I want to give kids a new outlook on engineering, show them that you don’t have to look or act a certain way to be an engineer. Look around. Engineers had a hand in all of it.”

“Graduates of SAE programs like Collegiate Design know the value of keeping kids involved with the organization,” says Bob. “If we can get kids involved early, we know that they remain involved. Jennifer and Eric are just two of the many SAE success stories.”

Eric is also headed back into the classroom, but he’s returning to the United States to earn his industrial design and engineering PhD.

Regardless of where their Collegiate Design experiences have taken them, program alumni are transforming the future of engineering.

“There’s so much more to do, so much more to learn,” says Eric.

FSAE Event Program – INFORMATION NEEDED!

Information was REQUESTED by the Education Relations Department Staff on your teams.

DEADLINE EXTENSION:

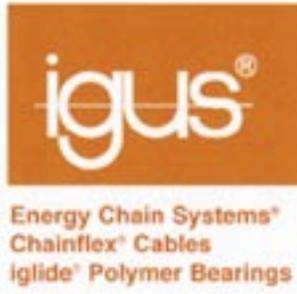
- 1) If you wanted your team members, faculty advisor, and sponsors to be published submit a list to fsae@sae.org by April 15th. Remember each team gets 10 free copies onsite...this is a good promotional tool for finding new sponsors!
- 2) Design specifications of the vehicles are to be completed on your team’s registration page online. This deadline will also be extended to April 15th.

This will be the last chance for your team’s information to be present in the 2005 FSAE program.

If you have any questions/problems, feel free to contact Kaley Shellhammer at shellham@sae.org or 724/772-8533.

igus, inc.

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Press Release

Students say Y.E.S. to igus fostering their mechanical design ideas and inventions by offering free product donations

Company launches Y.E.S. student support program

EAST PROVIDENCE, R.I. – March 1, 2005 –igus® Inc., the leading developer of Energy Chain Systems®, Chainflex® cables and iglide® plastic bearings, is proud to foster the mechanical design ideas and inventions of students who have a passion for engineering. To accomplish this, igus has instituted the Y.E.S. (Young Engineers Support) Program which offers free product donations to students involved in various design competitions and school projects. Students from across the United States and Canada have enjoyed the benefits of these donations and have implemented igus products in some unique and interesting ways.

Texas A&M University used an igus Energy Chain® aboard NASA's Reduced Gravity aircraft—the Weightless Wonder—to test the effects of acceleration on spatial orientation of liquid and ullage (gas/vapor) in a scale model propellant tank. The Energy Chain was used to organize, maintain and protect the instrumentation, power and control cables. According to one Texas A&M team member, the Energy Chain operated "flawlessly" under zero gravity conditions.

With the help of igus, another team created a revolutionary design that may one day help millions of people suffering from paraplegia.

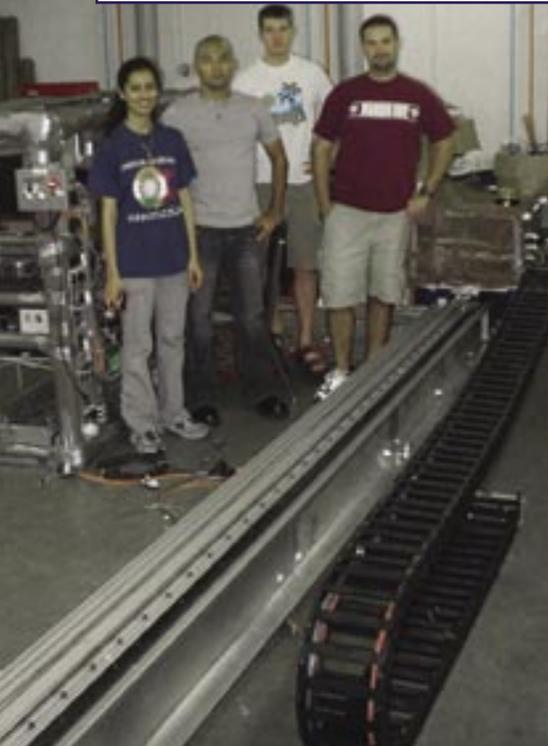
A group of professors and students at Northwestern University used the igus DryLin® T linear guide system in its wheelchair design. The seating system (US patent pending) relieves the adverse affects of prolonged sitting suffered by most wheelchair users. DryLin T enables the chair to be easily adjusted and used by any body type. It also delivers to the user a maximum amount of pressure relief, without creating a gap in the seat too large to sit in. The team at Northwestern also noted that DryLin T permits it to test the chair with many different kinds of people and also "makes [the chair] more comfortable and effective at the same time."

And these two teams are not the only ones who will vouch for the ongoing support from igus. There are many other student groups and organizations who stand behind igus' products as well.

Team Momentum, a student group from the University of Michigan, is using Chainflex continuous-flex cables in the construction of a solar car that it plans to showcase in a number of crosscountry races this year. The team is using Chainflex 1AWG cables to minimize power loss in the solar car and said they were, "as light and thin as a 2AWG wire", and also, "very flexible, and allowed us to bend them around corners and fit them into tight spaces."

Another team used free products from igus while building a vehicle, but of a completely different kind.

As part of a senior capstone design project, students from the University of Rhode Island used igubal® spherical bearings to support the steering shaft of their off-road vehicle. The vehicle was designed by the seniors to survive the "severe punishment of off-road terrain" and provided them with a challenging project. Once the vehicle was completed, the team participated in the Mini Baja East Competition in Canada and earned 22nd place out



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of 62 applicants. The team is looking forward to using igus bearings in next year's competition as well.

"Iigus has long been dedicated to helping students with an inclination towards engineering," said Carsten Blase, vice president of igus. "With the Y.E.S. program, we are formalizing that support. We are impressed with the various ways students have already used our products and we are looking forward to the future of the program."

While a number of universities and colleges have reaped the benefits of free products from igus, high school students have not been ignored.

A team of students from Commonwealth Governor's School, a high school in Virginia, used igubal pillow block bearings, along with iglide G300 flange bearings in its robot project. While competing in the FIRST Robotics Competition, the students faced three problems that included weight, precision and cost restraints. The team used iglide bearings to reduce the weight of the robot by 10 pounds and also noted that the construction of the bearing block allowed for ease of design, construction and replacement. With the help of igus, the team advanced to the quarterfinals and also received the Motorola Quality Award for having a well-designed and constructed robot.

The company has dedicated a section of its Web site to showcasing various student designs. Visit www.igus.com/yesprogram.asp to learn more about the program and to view summaries of what some students have designed and built. Iigus' aims are two-fold. It hopes to not only support young engineers, but also to build awareness about the advantages and merits of plastic components among the engineers of tomorrow who will one day be working on real world applications. Iigus plans to continue sponsoring student teams and aiding in the design of various projects. Iigus also looks forward to taking part in the future endeavors of students and encourages universities, colleges and schools to contact the company to learn how they can take advantage of the Y.E.S. Program. Iigus also welcomes inquiries from organizations hosting design and robotics competitions that are seeking products and sponsors.

About igus

Iigus Inc., founded in 1985 and based in East Providence, R.I., develops and manufactures industry- leading plastic cable carriers, continuous-flex cables, plastic bearings and linear guide systems. With more than 28,000 products available from stock, the company meets the motion control and machinery component needs of customers worldwide. Product lines include Energy Chain Systems to protect and house moving cables, Chainflex continuous- flex cables, iglide self- lubricating, oil- free, plastic bearings, DryLin linear guide systems and igubal spherical bearings. For more information, contact igus at (800) 521-2747 or visit www.igus.com.

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For more information contact:

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Interested in being a sponsor? Email Doug Shymoniak at Shymoniak@sae.org for sponsorship opportunities.

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