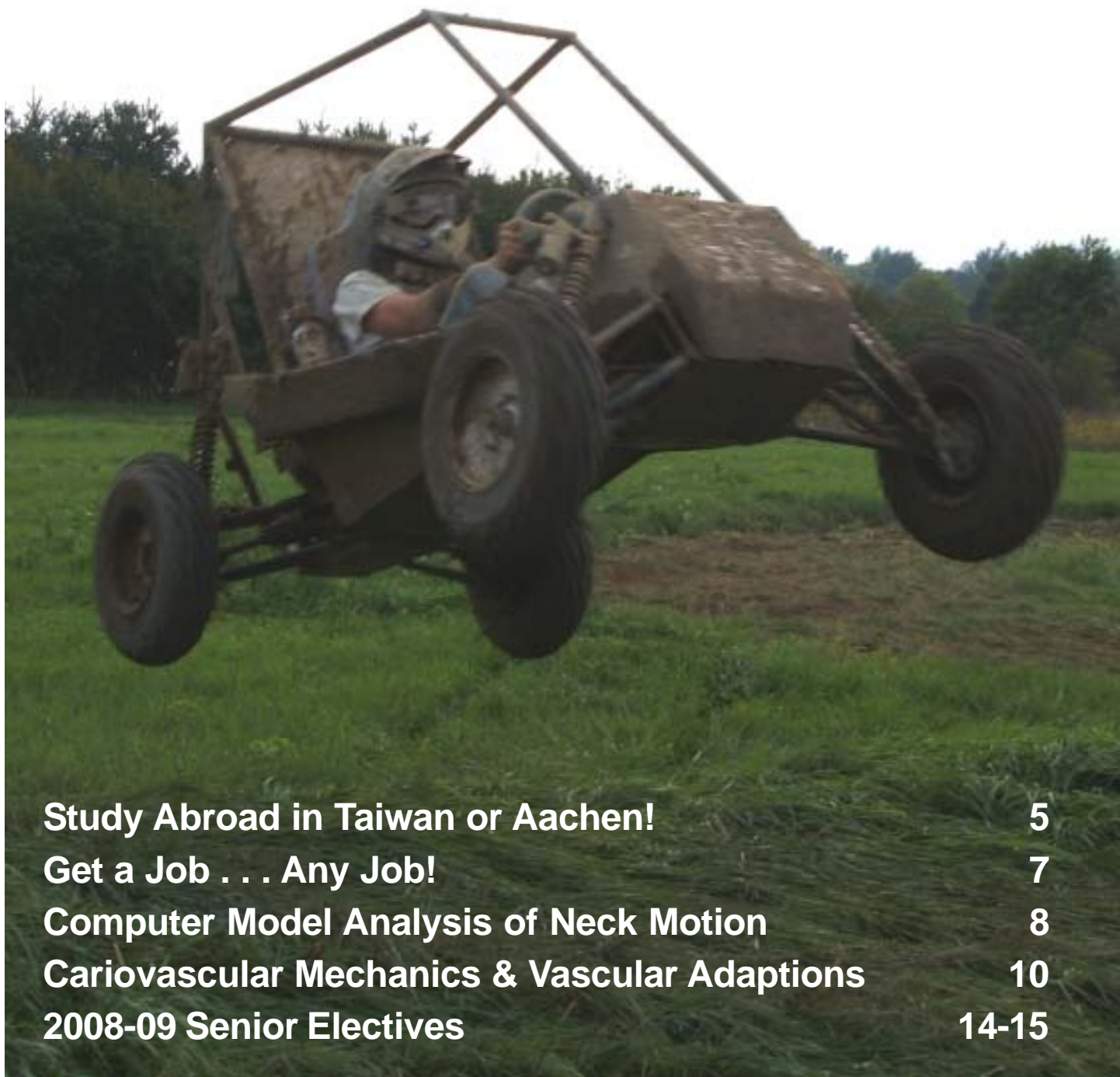


ME Bulletin

News for
Mechanical
Engineering Majors

Vol. 45, No. 2 ME Advising Office • 2560 EB • 355-3338 Spring, 2008

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Ken Maisonville "gettin' some air" and defying gravity on the MSU Baja Proving Grounds. Turn to page 11 and find out how you can get involved!

PHOTO BY EMILY DUSZYNSKI

Department News



• Professors Gary Cloud and Roger Haut were presented with Distinguished Faculty Awards in a ceremony led by President Simon and Provost Wilcox on October 17. On February 12,



Professor Steven W. Shaw was presented with a Distinguished Faculty Award at the Annual Awards Convocation. This is the highest honor the University bestows on faculty and the ME department is privileged to receive three in one



year, bringing the total to four (Professor John Lloyd is also a University Distinguished Professor).

• Professor Craig Somerton has received a \$45,000 grant from the Motorola Foundation in support of the Youth in Energy and Environmental Humanitarian projects for ME 481. These funds will support an ME

481 project that will partner with a local elementary school each semester for the next three years. A team of ME 481 students will work with an elementary school class on a project involving energy and the environment, and it will include the ME 481 team teaching some lessons to the class. This semester the team is partnering with the 5th grade class at Woodcreek Elementary School in Lansing on a global warming demonstration unit.



• Craig Gunn was presented with the Alvah K. Borman Award at the mid-winter meeting of the Conference for Industry and Education Collaboration

(CIEC). Each year, the award goes to a past or present member of the Cooperative Education Division of the American Society for Engineering Education who has made improvements in promoting the practice of cooperative education in engineering.

• Tim Hinds has been appointed to be the lead instructor for the new engineering Cornerstone Program, which will commence with next fall's new freshmen and transfer students. He will be teaching two new required courses, EGR 100-Introduction to Engineering Design and EGR 102-Introduction to Engineering Modeling. See Curriculum News on page 3 for more details.

• Maureen Blazer-Adams has been appointed Coordinator of the College of Engineering Design Day. The Coordinator's position is jointly held in the Departments of Mechanical Engineering and Electrical and Computer Engineering. Blazer-Adams will also teach courses in both departments.

• Brandon G. Gulker was honored by the MSU Board of Trustees at the fall 2007 commencement for having one of the highest scholastic averages in his graduating class. Since December 2005, six graduates of the mechanical engineering department have been honored with this award.

Special Overrides

• **Transfer Prerequisite Override Requests:** If you plan to take the prerequisite for an ME course at another institution this summer, you must submit a Transfer Override Form, so that you can receive a prerequisite override and enroll in the next course in the sequence. The form can be found at: <http://www.egr.msu.edu/me/undergrad/forms>.

• **ME 410 and 412** may be taken concurrently during Summer Semester *only*, but you will need a prerequisite override for ME 412. First enroll in ME 410. Then, submit the ME *Override Form* on the ME undergraduate website. Select "Other" for Reason for Request and write that you are taking ME 412 concurrently with ME 410 this summer.

• **ISS 3xx Overrides:** Students who transferred their first ISS course need to obtain a prerequisite override before enrolling in ISS 3xx. To obtain the override, call 517-355-9733 on Monday-Friday at 8:30 a.m.-4:30 p.m. (or you can go to 302 Berkey Hall during the same hours). ➤ *Be prepared to tell them the course number and section you are requesting.*

ME Bulletin

The ME Bulletin is published once each semester for sophomores, juniors, seniors, faculty and staff of the Department of Mechanical Engineering. It is also published as a PDF file at the following location:

<http://www.egr.msu.edu/me/undergrad/newsletter>

Photos were taken by Craig Gunn unless noted otherwise.

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Curriculum News

- **ME 180–Engineering Graphic Communications:** ME 180 (3 credits) is being changed to ME 280 (2 credits). This change is expected to take place for next fall. The prerequisites for ME 280 will include two new courses (EGR 100 & 102 or concurrently). Current students who still need to take ME 180 may take ME 280 instead, but they will need a prerequisite override. To request a prerequisite override, please go to the ME Override Request form, located at: <http://www.egr.msu.edu/me/undergrad/> [Click on Forms & Handouts].
- **ME 285–Computer Aided Design Tools** will be offered fall semester. Prereq: ME 180. Instructor: **Bob Chalou**. This course may be used as an Other Elective.
- **ME 372–Machine Tool Lab** will be offered both fall and spring semesters. Instructor: **Roy Bailiff**. *Note: ME Manufacturing Option students receive priority for seats in this course.*
- **ME 481–ME Design Projects:** ME department approval is required before enrolling in ME 481. To obtain approval, complete and submit the *ME 481 Enrollment Approval Form* located in the Forms/Handouts link on the ME undergraduate website. ME 481 must be taken during your last semester (or spring semester for August grads). It is in your own best interest to have an accurate long-term schedule on file in the ME Advising Office. If you do not have a long-term schedule on file, or if your old one needs to be updated, please call 517-355-3338 and schedule an appointment with Gaile.
- **ME 491/201–Refrigeration** will be offered this summer. It will count as a non-design intensive Senior Elective. See page 14 for more information.
- **BME 401–Quantitative Human Biology** is no longer being offered. Biomechanical Concentration and BME Specialization (“Option”) students will need to select an alterna-

tive course from the official list.

- **Options / Concentrations:** The Biomechanical, Engineering Mechanics, and Manufacturing Engineering Options are being changed to “Concentrations.” This change will not affect their requirements.
 - **ME Honors Section:** ME 280H is available to Honors College students until April 13. After that, students with a 3.5+ GPA are also eligible and may request and receive overrides for open seats.
 - **New “Cornerstone” Program:** Beginning Fall 2008, new freshmen and transfer students will complete a new Cornerstone Program as part of their degree requirements. It will consist of two new 2-credit courses, EGR 100-Introduction to Engineering Design and EGR 102-Introduction to Engineering Modeling. EGR 102 will replace CSE 131 on the ME program.
- Class Standing** information for ME juniors and seniors is available in the ME Advising Office. You will need to present your MSU I.D. card. ME sophomores can obtain this information in 1410 EB.
- **ME graduate courses:** If your GPA is 3.5 or higher, you may be able to take a graduate-level course and apply it to your Senior Electives. To obtain permission, complete a *Graduate Course Override* form, available in the ME Advising Office. This is a paper form.
 - **Prerequisites:** The ME department expects all students, *including members of the Honors College*, to observe all course prerequisites. If you have a question, contact the ME Advising Office at 355-3338.
 - **Schedule Conflicts:** The ME department will assist students with conflicts between required courses. *However, the department cannot overfill required courses to resolve conflicts with Senior Electives, Other Electives, Integrative Studies courses and employment schedules.*

Enroll Now for Summer Semester!

The following courses are on the summer schedule and will be of particular interest to ME majors:

- **First Session:** CE 221; ME 361, 391, 410; MSE 250, 426; STT 351.
- **Second Session:** ME 201, 222, 471; 491/201; STT 351.
- **Full Session:** ME 332, 412, 451, 461 and 490.


You will also find several Integrative Studies and Bioscience courses, plus courses that can be used as Other Electives.

A number of extension courses, including ISS and IAH, will be offered in the Detroit, Flint, and Grand Rapids areas. In addition the following Integrative Studies Courses will be offered online:

IAH 211C and 241C
ISS 210, 310, and 315

If you decide to take the prerequisite for an ME course at another institution this summer, please follow the Special Override instructions on page 2.

Scheduled enrollment for summer begins on March 10, and your enrollment appointment is posted in StuInfo.



Take Note...

The summer enrollments as of March 24 will determine whether there are enough students to offer each ME course. So . . .

It is in your own best interest to enroll in your summer courses by March 24!

REMEMBER!

**LOW ENROLLMENTS
CAN MEAN CANCELED
COURSES!**

Associate Chair's

Corner by Professor Craig W. Somerton, Assoc. Chair for the Undergraduate Program



So you are trying to decide which Senior Elective to take. It's a problem since you have a schedule conflict for those that really interest you and those that

fit your schedule don't seem very interesting. So you peruse the list in **Gaile's ME Bulletin** and notice ME 490- Independent Study in Mechanical Engineering. Now this seems interesting, but you would like to know more about it.

In my 20+ years at MSU I have supervised many (well over 50) independent studies with undergraduate students. I believe that these can be outstanding learning experiences for the students. But be fair warned, an independent study is not intended for the ordinary student as it is an extraordinary experience. One does not take an independent study simply to fill out one's schedule. An independent study can be a life or career changing experience. Here is a guide for those considering an independent study:

- Figure out which area of mechanical engineering (fluids, dynamics, controls) you want to learn more about and deepen your understanding.
- Identify a professor working in this area and review his/her web site to see what their current projects are. You may wish to restrict your attention to a professor that you have had in a class. Sponsoring an independent study is extra work for a professor with no additional reward. I will not sponsor an independent study for a student that I have not had in class.
- Make an appointment with the professor to discuss an independent study and let him/her share with you ideas for possible projects.

Think About Graduate School

by Clark J. Radcliffe, Assoc. Chair for Graduate Programs

Can I afford to go to Graduate School? Yes, you can. Most of our ME graduate students have a teaching or research assistantship. A typical assistantship pays health care, tuition and salary worth about \$30,000 per year or more. Teaching assistants help faculty teach courses while research assistants work for faculty on funded research projects.

Why go to graduate school? Graduate degrees permit you to control and shape your engineering career in ways that are impossible without them. Graduate degrees help you develop the expertise that uniquely qualifies you for those special professional positions that every engineer looks forward to.

Does Graduate school make sense economically? The salaries paid to engineers rise dramatically with degree level. EngineerSalary.com says expected salary for an inexperienced "ME-Analytical" with a B.S. is \$56,000. Salaries rise to about \$75,000 with a M.S. and \$95,000 with a Ph.D. Of course, experience raises also raises salary but *no single qualification raises salary faster than a graduate degree.*

Joining us for a graduate degree. We have a new research centers. The new Energy and Automotive Research Laboratories (ERC-South), the U.S. Air Force Aero-Sciences Center in computational fluid mechanics, and the Composite Vehicle Research Center. Currently Mechanical Engineering at Michigan State University has about 130 graduate students evenly split between M.S. and Ph.D. students. The new research centers will substantially increase that number over the next two to three years. This is an opportunity for new students to participate in new and exciting emerging technology.

When can I start? Students start any semester. Most of our graduate students start Fall semester. Many students start Spring semester. A few start Summer semester. If you are finishing your B.S. degree with less than a full load, you can *dual enroll* for a semester and earn credit towards a B.S. and M.S. in the same semester. If you are graduating before Fall 2008, come join us as an ME Summer Research Intern.

Come see us for details. To learn more, contact the **Graduate Secretary Aida Montalvo** <megradad@egr.msu.edu> or myself in the Mechanical Engineering Graduate Program Office 2318 EB, 355-5220.



- If you and the professor come to an agreement, visit Gaile to pick up the proper paperwork. Sit down with your professor, fill out the paperwork, and return it to Gaile.
- The required deliverable for the independent study is a written report that documents your work and the project. An electronic version of the report must be submitted to Gaile's office. We need to have copy for accreditation purposes. Your professor may require additional deliverables.
- Neither the department nor a professor is required to sponsor an independent study. There is some

self-marketing that occurs in the process.

For further consideration, here are some independent studies I have sponsored over the years:

- Modeling an Aircraft's Climate Control System
- Kidney Dialysis Systems Design and Analysis
- A Computer Model for the Design and Analysis of an Ocean Wave Power System
- Cooling of Electronic Boxes
- Non-Dimensionalization of Fan Performance Data

Global Engineering Concentration: Taiwan Program

by Professor Dahsin Liu

In light of the fast movement of globalization in engineering, the Department of Mechanical Engineering at Michigan State University has established the Global Engineering Concentration (option). The ME faculty strongly believe that U.S. students should be prepared to face global competition, and they encourage them to take the advantage of the opportunity to study abroad before they graduate. The ME department has recently established student exchange programs with two of the most prestigious universities in Taiwan: National Taiwan University (www.ntu.edu.tw) and National Tsing Hua University (www.nthu.edu.tw). Both of these programs are part of the Global Engineering Concentration.

Language Preparation

Interested U.S. students are expected to visit Taiwan in the spring semester, which usually starts in mid-February and ends in mid-June, during their junior year. The visit may be extended to summer semester, if desired. A preparation for minimum Chinese language capability is required prior to the students' departure. It can be achieved from taking a Chinese course at MSU or any other formal or informal Chinese language classes inside or outside MSU. This language requirement is not only necessary for personal survivability in Taiwan but also for a future career in dealing with Chinese engineers in China, Hong Kong, and Singapore. During their stay at Taiwan, the students will live with English-speaking Taiwanese students on the NTU or NTHU campus and enjoy Taiwanese hospitality. They should also expect to have Chinese meals daily although American food may also be available.

Course Work

Visiting students are expected to take nine to twelve credits (three to four courses) during the spring semester in their host universities. The courses will be taught in English or mixed with Chinese. Students must consult with their academic advisor **Ms. Gaile Griffore** to select courses prior to their departure so the continuation of their MSU program can be ensured. Since the Global Engineering Concentration is aimed at promoting an awareness of the globalization of engineering and international cooperation, students are required to participate in various team project activities to gain experience in international interaction during their stay. The U.S. students should expect that their Taiwanese partners speak reasonably good English and are very competitive in engineering knowledge.

About Taiwan

The island of Taiwan is located in the midway among the largest cities in the Far East, including Tokyo, Seoul, Beijing, Shanghai, Hong Kong and Singapore. The area of Taiwan is about one-third the size of Michigan while the population is twice that of Michigan.

Taiwan is ranked as the 16th largest country in GDP in the world. With its industries heavily focused on electronics, Taiwan claims herself to be the *Silicon Island*. The ME departments at NTU and NTHU offer courses in electronics related specialties, such as mechatronics, nanotechnology and precision manufacturing, which can enrich the engineering education of MSU students. The mixture of traditional Chinese culture with the modern infrastructure at Taiwan will certainly offer much charm to MSU students.

MSU – RWTH Aachen Exchange Program

IMAGINE that you are speaking with a company recruiter or that you are in an interview for an exceptionally well funded graduate fellowship. The posed question is: "What has been a distinctive aspect of your undergraduate studies; what, in your experience, sets you apart?"

"Carrying out research at one of Europe's leading technical universities (RWTH Aachen) in close cooperation with German colleagues and studying a 'foreign' language in the land of native speakers" makes a strong answer to that question.

This successful exchange program is in its 25th year! It provides the opportunity for our MSU students to study (GRM 102 or higher) and do research (ME 490, 5 credits) at one of Europe's leading technical universities (Rheinisch-Westfälische Technische Hochschule).

The 2008 version of this longstanding program will involve 5 MSU ME students who will be in Aachen from May 15 through July 31. Their research opportunities will include work in the Aerodynamics Institutes, the Plastics Processing Institute, the Automotive Institute and the Helmholtz Institute for Biomedical Engineering.

The 2009 program will also be open to CHEMS students. They are natural candidates for projects at the Plastics Processing (IKV) and the Biomedical (Helmholtz) institutes.

Students interested in the 2009 program are invited to contact **Professor J. Foss** (foss@egr.msu.edu). It is our intent to have the 2009 group formed by the end of Fall Semester 2008 such that the 1-credit ME 490 preparatory work can be carried out in the Spring Semester 2009. *Submitted by Professor Foss.*

Spring 2008 Dean's List

Congratulations to the following 175 mechanical engineering majors who made the Dean's List after Fall Semester with a semester GPA of 3.5 or higher.

This list was taken from the Registrar's official website, which is updated regularly: <http://www.reg.msu.edu/ROInfo/GradHonor/DeansList.asp>

Adam Alderman, Paul Allen, Michael Allon, Saud Alrakhayes, Mohammad Alwahibi, Hassan Alzayer, Kyle Anderson, Muhammad Aslam, Timothy Aspinall, Brendan Ayer, Charles Baird, Michael Balck, Samuel Baldauf, Kyle Bateman, Justin Bauer, Logan Beam, Amber Beebe, Andrew Binell, Stephanie Bonner, David Cain, Andrew Cawood, Louis Cervone, Andrew Chiesa, Sarah Christowski, Andrew Coleman, Bryan Cooper, Scott Coy, Julie Crane, Joel Darin, Nathaniel Davis, Timothy Degraff, Andrew Degroot, Trevor DeLand, Anthony Dellicolli, Michael Douglass, Patrick Eathorne, Kyle Elliott, Ryan Emmorey, Bryant Ennis, Kevin Etzel, Brent Ewald, Allen Eyler, Christopher Ezop, Neil Ferguson, Matthew Flis, Ian Forney, Jason Franklin, Lucas Fratta, Allison Freeman, Glinisky, Chad Phillip, Joao Goncalves, Arjang Gounelli, Blake Gower, Bryan Grinnell, Adam Grisdale, James Guitar, Brandon Gulker, Jacob Haf, Stephen Hammack, Patrick Hammer, Kevin Hanley, Andrew Harbin, Richard Henderson, Harold Hill, Matthew Hirschfield, Jeremy Horgan, Grant Hubert, Clarence Huff IV, Stanley Hunley, Melissa James, Spiros Kakos, Michael Karoub, Alan Katz, Ryan Kelly, David Kempf, Taryn Klinkner, Lindsay Kredo, Thomas Kret, Ashley Kulczycki, Richard Kwasnik, Jeffrey Laforge, Gerald Landry, Patrick Larabell, Clark Leamon, Benjamin Llewellyn, Benjamin Luedeman, Hansen Ma, Courtney Macdonald, Arun Mahapatra, Evan Marks, David Marsh, Uday Mathur, Rachel Maurer, Kevin McAlpine, Eric McElmurry, Charles McGovern, Michael McKimmy, Michael McPhail, Ryan McPhee, Justin Meeder, Kevin Miller, Mollie Montague, Sara Murawa, Kurt Northrop, Joseph Obeidi, Brandon Olsen, Michael Olsztyn, Jonathon Ostroski, Amir Ouyed, Jelena Paripovic, David Parke, James Peers, Gregory Pelkie, Kelly Peterson, Anthony Piro, Florian Pribadi, Martin Priess, Matthew Pung, Elliott Radcliffe, Michelle Raetz, Adam Rainbolt, Alejandro Recio-Sada, Peter Redente, Mathieu Rich, Jay Richards, Nicholas Righetti, Brian Rockwell, Joseph Rotellini, David Ruddock, Joshua Samp, Nicholas Schock, Shangyun Shi, Lindsay Smith, Adam Sneller, Kyle Spiekermann, Jacob Sprague, Zachary Steffes, Kristin Steinmetz, Scott Stieber, Paul Strefling,

59 Seniors to Graduate in May and August!

Congratulations and best wishes to all ME graduates! On behalf of the faculty, I wish you the greatest happiness and success in your careers, graduate studies, and personal lives. The following students had applied for graduation by February 28. If your name is missing, please contact me immediately <griffore@egr.msu.edu> Tele: 517-355-3338).—Gaile

May Graduates

Andrew John Abramouski	Blake Ernest Gower	Brian Joseph Powell
Mark Arthur Benton	Bryan Sherman Grinnell	Justin James Rumao
Michael John Booth	Michael V Gyetvai	Mohd Hadri Aswad Salim
Brandon Zachary Bouchard	Michael Edward Hagedorn	Brian Roger Smith
Justin Louis Bradford	Aaron William Hall	Adam Jon Sneller
Aaron Lee Butler	Brett Robert Hollier	Kyle John Szytkiel
Patrick Michael Cadigan	Erin Ashley Johnson	Lane Charles Taber
Christopher Andrew Caffee	David William Klipfel	Jin Zhang Tam
Marcos Joel Colon	Kyle Clinton Koepf	Joshua Paul Thomet
Paul Edward Crockett	Eric John Krajewski	Nicole Virginia Vidro
Timothy Charles Degraff	Darius Augustin Libiran	Bryan Ellis Wagenknecht
Pinal Kamlesh Desai	Evan Brett Marks	Jacob C Wagner
Tiffany Lynn Dipetta	Erik Daniel Marshall	Justin Bradley Webster
Jason David Franklin	Mohd Shuhaimi Mokhtar	Wayne Lee Williams
Kalpen Shailesh Gandhi	George Jose Mullonkal	Scott Wesley Wiltz
Chad Phillip Glinisky	Steven Kingfan Poon	Boon Tiing Yong

August Graduates

Alexander Blake Bellinson	Daniel John Little	Nicholas Oliver Rowe
Michael Duffey Cooper	Martin Cody Priess	Donald B Snyder
Sarthak Goel	Ryan Russell Rieck	Keith Edward Srebinski
Jerry E Landry		John Nathan Woodruff



Peter Strom, Ryan Stull, Erik Sundberg, Alexander Suradja, Christopher Sweeney, Kyle Szytkiel, Ryan Taelman, Jin Tam, Eric Tauzer, Daniel Tepe, Jessica Theis, Bryce Thelen, Michael Thoel, Eric Tingwall, Diana Toan, Calan Underwood, Stephanie Vasi, Fernando Vasquez Dheming, Nicole Vidro,

Bryan Wagenknecht, Eric Waggy, Cody Wagner, Ryan Wahula, Cory Waltz, Justin Ward, Matthew Weir, Eric Wickenheiser, Sara Wiederoder, Matthew Wolfe Jr, Shawn Wright, Taylor Young, Jeremy Zalud, Philip Zanotti, Oliver Zemanek, Lauren Zrebski.

The 2008 Pi Tau Sigma Spring Golf Scramble



Open to all ME students!
Saturday, April 19
Forest Akers East Golf Course
11:00 a.m. Start



Network with people from industry!
Get a job or internship by playing one game of golf!

The fourth member of every team will be a recruiter from a successful engineering company.

9 Holes, Cart, and Picnic Lunch:
\$10 for MSU studnets & \$20 for all others

Pre-register teams of three, or register as an individual and network with new people. For more information or to register, please contact Blake Gower at <gowerbla@msu.edu> or visit the Pi Tau Sigma website at www.egr.msu.edu/pts/

Get a Job . . . Any Job (Employers Look for it and Employers Want it)

by Jennifer Jennings, Field Career Consultant, The Center for Spartan Engineering

Tip #1 – Get a job...any job!

Valuable experiences come in many forms and employers recognize them all:

- Co-op/Internship
- Summer Research
- Study Abroad
- Part-time Jobs

Did you know? Most engineering employers are requiring “experience” and need to see that on your resume. It REALLY does matter.

Tip #2 – Volunteering is a valuable experience

- Service Learning
- Volunteer: at home, in your neighborhood, at a local school, etc.

Did you know? Yes, employers look for students/grads that have volunteered. This is an EXPERIENCE and volunteering shows your commitment to community, industry, and others. Not to mention time management, prioritization, communication, teamwork and more.

Tip #3 – Thinking about a move? Want to work in the city? Visit before you decide!

- Visit a local employer, or not so local...but VISIT
- Set up informational interviews: ask questions about culture and types of jobs
- Tour
- Network
- Look into cost of living
- What is the transportation like?

Did you know? Most “city” jobs require professional dress?

Tip #4 – Network with your neighbor

Visit; tell them you are home, what you have been up to? Ask if they have contacts for you. Ask if they have summer opportunities at their worksite. You neighbor has a network too . . . ask for referrals (a referral is simply being referred to another point of contact).

Did you know? More jobs are found through networking than any other job search method?

Tip #5 – Know if YOU are what employers are looking for

Have you worked? Do you have skills and experiences to share? Initiative, creativity, critical thinking, teamwork skills, effective communicators, leadership, project management, conflict management etc.; and don’t forget to PROVE IT! Use examples to show that you have these skills.

And yes, YOU have these skills! All engineering students have worked in teams, designed projects, set up goals, documented, communicated and resolved issues.

Tip #6 – Explore your major

- Visit a local employer
- Job shadowing
- Study abroad
- Join a student organization

Did you know? Once you have identified your strengths and weaknesses, you can take advantage of opportunities that will help

you in your industry: public speaking, teamwork, critical thinking, conflict management, project management, leadership, etc. Then find an activity that can help you gain this experience.

Tip #7 – Update your resume

Make a point to make updates each semester. Add new skills and experiences. Have it proofread!

Tip #8 – Not sure how to network?

- Define it: Exchange of information between people! That is it...exchange information: name, major, what interests you about your major, skills, examples, why you like the company, etc.
- Use it: When employers are on campus for sessions, meetings, fairs, when you walk into an interview, when you make a call.
- Engage in it: Go to employer sessions, join organizations, ask questions, and get involved in your major. Set up informal meetings to ask questions and get answers.
- Follow up with it: DO IT! Send the email. Stay in touch. Thank them for their help and for visiting campus.

Did you know? Summer break is a great time to work! Networking needs to happen before hand. Then, keep it up with the other employees once on your job site.

Tip #9 – Know what your college can Do for YOU

The College of Engineering has many resources available to students: student organizations, mentors, career services, academic advisors, faculty, employers, and more!

Tip #10 – Make sure your grades are a good representation of you

Need help? Visit the Guided Learning Center in 1108 EB. Meet with your professor during office hours, talk with students, form study groups.

Tip #11 – Know the resources available to You

Need help? Not sure who to talk to? Not sure where to go? Visit The Center, 1340EB

- Networking
- Looking for Jobs: www.myspartancareer.com
- Resume Help
- Mock Interviews
- Career Search Timelines/Resources
- Professional Development Seminars
- Employer Visits: on-campus/off campus
- Skills Assessment

Tip #12 – This is a lot of stuff. Know how to organize and prepare for events, interviews and a job?

Prepare by: scheduling a mock interview, having your resume critiqued, attending professional development seminars and workshops all offered by The Center.

Biomedical Engineering Research: Computer Model Analysis of Neck Motion for Two Subject Groups By Emily Wandell, Nicholas Bechnau, William Smits, Seungik Baek, Ph.D, Jongeun Choi, Ph. D., Tamara Reid Bush, Ph.D.

Mechanical Engineering Masters Student **Emily Wandell** recently presented research at the 2008 World Congress on Neck Pain in Los Angeles, California. The congress was devoted to discussing the latest scientific research on the prevention, diagnosis, and treatment of neck pain.

The research was conducted as a part of the mechanical engineering department's summer internship program. Wandell worked with the Body Adaptation and Musculoskeletal Functions (BAMF, <http://www.egr.msu.edu/wholebody/>) Research Group with professors **Tamara Reid Bush, Seungik Baek, and Jongeun Choi.**

The goal of this specific project was to evaluate the potential of a current cervical computer model and its ability to differentiate muscle function of two clinically identified groups - subjects with normal movement of the head and neck and those experiencing neck pain.

Along with clinical assessments, further biomechanical study of the human body as it relates to clinical diagnosis and treatment is a necessity. One difficulty in the biomechanical assessments of humans is the large range of variability. The other challenge with human testing is controlling specific test parameters, such as age or type of impairment. However, a well defined biomechanical model has the potential to address these issues by providing estimations for a specific population as well as mainstream populations. Thus, different predictive scenarios could be studied with a computer model to shed insight into how various parameters affect the kinematics or the muscle forces associated with an activity. Therefore to move toward an era of evidenced based medicine, it will be necessary to develop computer models that are more representative of the human body.

This study used kinematic data obtained from two groups of subjects, one classified as having symmetric movement patterns (n=10) and another exhibiting high levels of neck pain (n=9), to drive a cervical computer model (designed by **Mark de Zee** of the AnyBody Research Group in Denmark). The model then generated muscle profiles for each subject; these profiles were grouped and compared (Figure 1). It was hypothesized that the kinematic patterns for the symmetric subject group would yield differences in muscle activities (predicted by a computer model) as compared to the group that demonstrated pain.

First, two examiners screened subjects through the palpatory diagnostic test of cervical lateral flexion; by their concurrence, ten subjects were deemed symmetric. Nine subjects had a self marked score of 4 or higher on a Pain Scale and were placed in the pain group.

One examiner then performed a diagnostic test of passive cervical lateral flexion on these subjects and 3-D kinematic data were collected from a 5-camera Qualisys system. For data collection, three targets were placed on the head and three were placed on the sternum.

Next, the three-dimensional movement patterns from each of the subjects were inputted into the cervical model and used to drive the movement of the head/neck. By solving the muscle recruitment problem, the model provided percents of maximum muscle forces for those muscle groups used in the activity, (Figure 2). (See Figure 3 for muscle locations.)

The model predicted the highest activity in the Longus Colli, Scalenus Posterior and Sternocleidomastoid muscle groups for both symmetric and pain subjects. The symmetric

subjects consistently yielded higher levels of activity with the average of right and left sides at 41% for the Longus Colli, 41% for the Scalenus Posterior and 22% for the Sternocleidomastoid while the pain subjects demonstrated 32%, 31% and 19% respectively. In both groups the lowest activity was found in the Trapezius and Splenius Capitis with the average of right and left sides ranging from 0.5 to 3 %. Upon the completion of a t-test at a 95% confidence level, only the activity from the Trapezius was significantly different (p=0.03) between groups. However several other muscle groups demonstrated low p values, and with a larger sample size may show significant differences: Sternocleidomastoid (p=0.17), Longus Colli (p=0.21), Scalenus Medius (p=0.23) and Scalenus Posterior (p=0.29).

The higher activity in symmetric subjects might be expected because as a group they had a larger range of primary motion. Higher muscle force values for a control group were also reported in a different study by Barton and Hayes (1996). In future work, larger sample sizes along with further classification of the asymmetric/symptomatic subjects (such as etiology) will be necessary.

In the future, a model increasingly more representative of the human cervical region has the potential to be used in combination with biomedical/clinical assessments to facilitate the move toward evidence-based strategies.

If you are interested in biomechanical work of this nature, contact any of the following faculty:

Dr. Baek sbaek@egr.msu.edu,
www.egr.msu.edu/~sbaek/

Dr. Bush: reidtama@msu.edu,
www.egr.msu.edu/~reidtama

Dr. Choi jchoi@egr.msu.edu,
www.egr.msu.edu/~jchoi

Pi Tau Sigma



Pi Tau Sigma, the mechanical engineering honor society, is very excited about this semester. We got off to a running start with an all-you-can-eat wing night at Buffalo Wild Wings. We also participated along with many other engineering clubs in the MSU Junkyard Wars on February 22nd.

There are many upcoming events for this semester to keep our members and initiates active. A Senior Elective night will be hosted by Pi Tau Sigma to aid students in the class selection process on Monday, March 17th at 6 p.m. in 1345 EB. A Grad School presentation will also be incorporated in the evening to offer students a chance to start planning for their future. The presentation will held at 6 p.m. in 1345 EB and will include free food and beverages. We also plan to help our community this semester by preparing dinner at the Ronald McDonald House. Joining ASME, we will also help to fight cancer by walking in the Relay for Life on April 18th. Cosmic Bowling is another event we have planned for this semester to bring engineers together for a fun night out at the lanes.

The Golf Scramble, our biggest event each semester and is open to all mechanical engineering students. There will be recruiters attending and it will be a great opportunity to network for full-time and co-op and intern positions for next year. We will meet on April 19th at Forest Akers East Golf Course and tee times will be every 8 minutes from 11:00-11:56 am. Cost is just \$10 for ME students and \$20 for all others.

For more information about any of our events, please check out our website at www.egr.msu.edu/pts.

We hope to see you at upcoming events! Submitted by Amanda Ruhno, Secretary

GRAPHICS PROVIDED BY DR. REID-BUSH

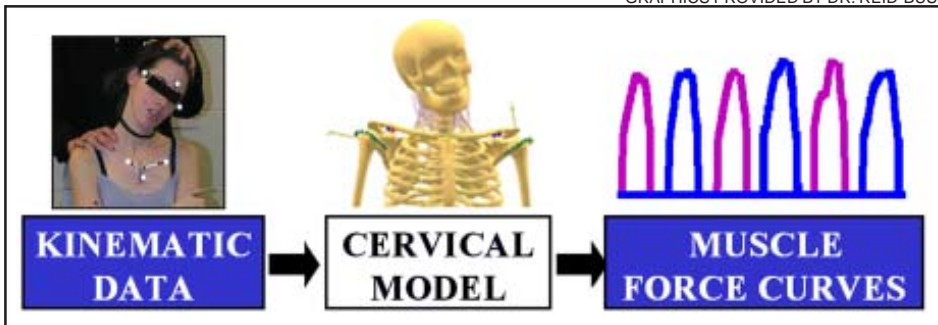


Figure 1

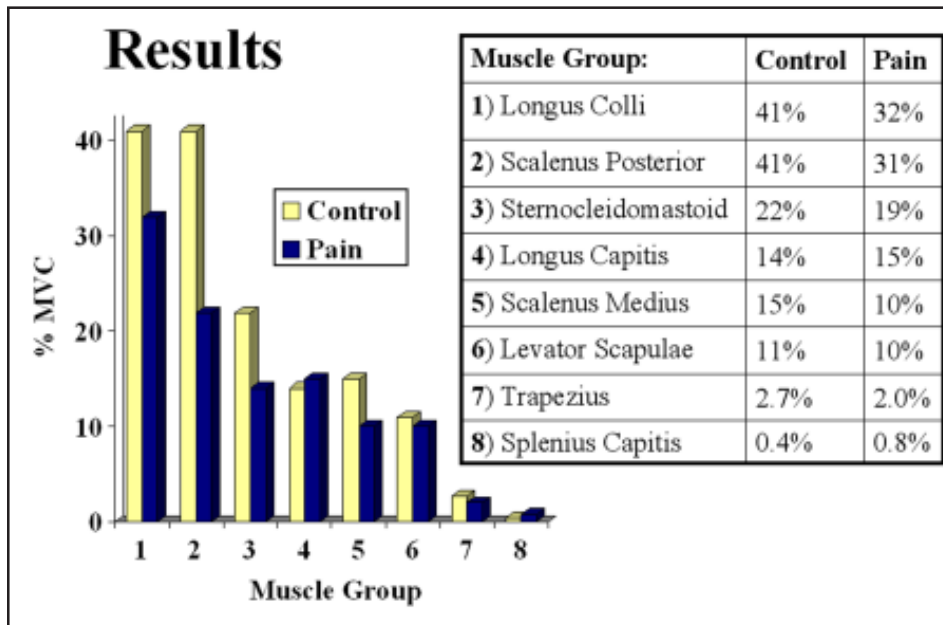


Figure 2

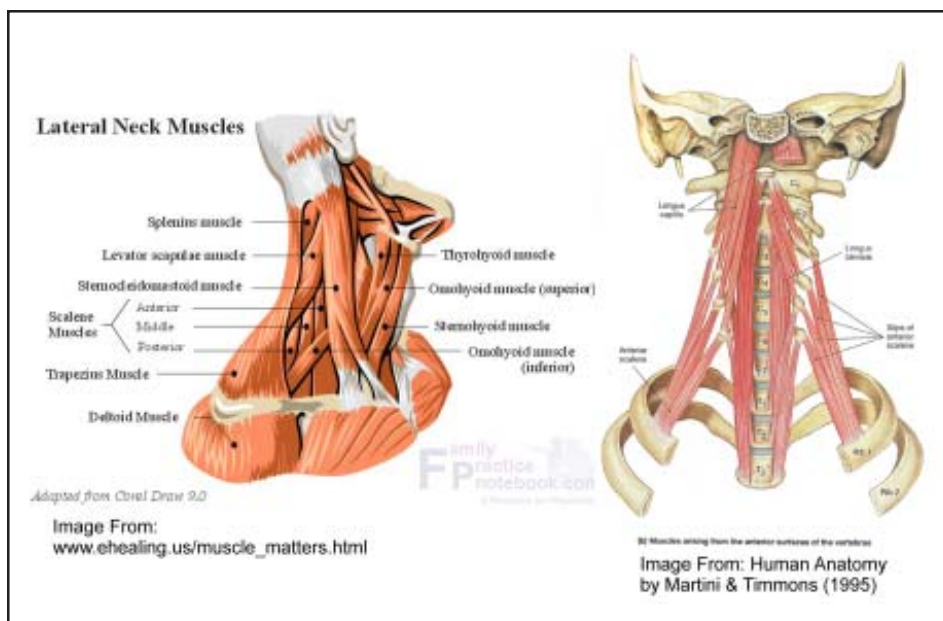


Figure 3

Research in Cardiovascular Mechanics and Vascular Adaptations by Dr. Seungik Baek

“The blood vessel is no longer considered to be simply a non-thrombogenic passive conduit for blood flow. Rather, it is increasingly viewed as a continually adapting, physically and chemically interdependent network of elements with the common goal of maintaining optimal function in response to continually changing hemodynamic and metabolic condition.” – Maleck and Izumo (1992)

Blood vessels adapt in response to changes in their biomechanical and biochemical environment throughout life. Especially diverse observations reveal that growth and remodeling (G&R) in arteries correlate well with changes in mechanical stresses; wall shear stress and intramural stress.

For example, consider one who just started his/her exercise. The blood flow in the body increases to supply more oxygen and nutrients that the body needs. We know from fluid mechanics that the wall shear stress in pipe flow increases proportionally with the increase in the flow rate at a fixed diameter. Endothelial cells in the inner layer of the vessel sense the increase in wall shear stress and generate chemical signals (e.g., nitric oxide) and the chemical signals transfer to vascular smooth muscle cells in the media. The vascular smooth muscle cells, then, immediately relax their vasoactive tone to increase the vessel diameter.

Also recall from your fluid mechanics class that the shear stress decreases with an increase in the diameter at a fixed flow rate. In such a way, the blood vessel restores the wall shear stress back to its normal (or preferred) value. When the person finishes the exercise, the blood flow rate and the vessel wall diameter return back to their initial values. In cases where increases in flow are sustained, however, the microstructure in the arterial wall adapts so that the diameter of the blood vessel is increased permanently and the vasoactive smooth muscle tone returns to their normal level.

Another example of vascular adaptations is a thickening of the vessel wall under the sustained increase in blood pressure. Recall from the strength of materials class that the hoop stress of a pressurized thin cylinder is proportional to the ratio of the transmural pressure to the wall thickness. Thus, the thickening under the sustained hypertension will return the intramural stress to its preferred level. Such tendency of returning to its preferred mechanical state is called “mechanical homeostasis.”

Various studies suggest that the stress-mediated vascular G&R manifests not only in normal processes but also in many progressive diseases (e.g., aneurysms, arteriovenous malformations, compensatory enlargement in atherosclerosis, cerebral vasospasm, Marfan syndrome) and responses to injury.

The cardiovascular research lab at MSU particularly focuses on vascular adaptations during the enlargement of abdominal aortic aneurysms (AAAs). An AAA is a dilatation of the abdominal aorta mainly due to the loss of the elasticity in the arterial wall. Approximately 5 to 7 % of people over 60 years old in the US have an AAA. If left untreated, an AAA will gradually

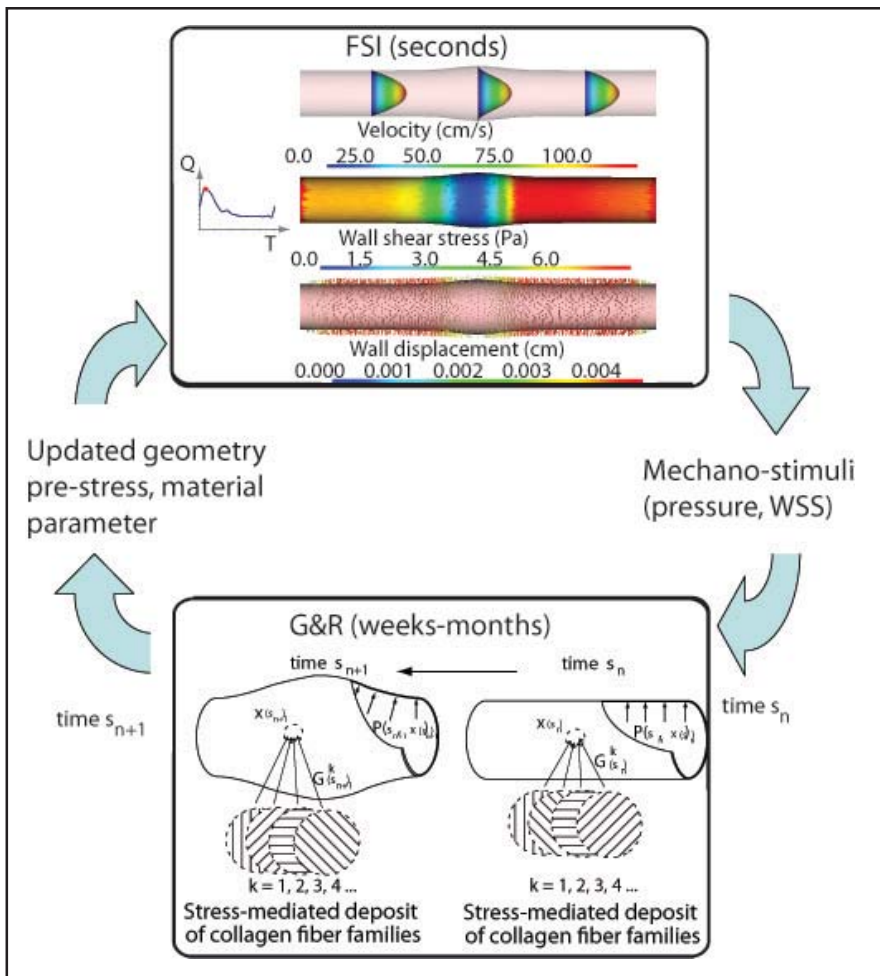


Figure 1. Iterative loop and information transferred in the coupling between the fluid-solid interaction simulation and the G&R simulation.

expand and eventually rupture. The rupture of AAAs has a high mortality rate (ranging from 40~80%) and is ranked as the 13th most common cause of death in the U.S.

For the study of AAAs, we utilize a finite element method based on multi-constituent continuum mechanics as a computational tool, which can account for interactions between structural components, interstitial fluid, and cells and production and removal of each constituent due to mechanosensitive cellular behaviors during the enlargement. Current research activities in the study of AAA enlargement include histological studies and mechanical tests of the abdominal aorta, development of a multi-scale computational model of enlarging AAA, development of a prediction technique of the AAA rupture potential based on MR images, and the development of a computational method to simulate coupled fluid-solid-growth (FSG) interactions in AAAs. Figure 1 shows a schematic drawing of the FSG modeling framework.

As the population of elderly people increases, the burden of AAA on health resources will increase enormously. Hence, our research to increase our understanding of multifaceted biochemical and biomechanical processes during the AAA enlargement and to give a better prediction of which AAAs are likely to rupture will guide better clinical and pharmacological interventions, which will have a great impact on our society.

For more information about current projects or recent publications, please visit the website http://www.egr.msu.edu/~sbaek/Cardio_Lab.html or contact Dr. Seungik Baek at sbaek@egr.msu.edu.

COVER STORY – MSU Baja Team SAE



PHOTO BY MATT WERNER

-26° wind chill . . . 5 ft. of snow! Nothing keeps us from racing at Michigan Tech's Winter Baja!

SAE

The MSU Baja SAE racing team has hit spring semester running! The semester began by rebuilding three vehicles for the Winter Baja Invitational hosted by Michigan Technological University on February 16th. The race proved to be a great experience for many of the new recruits, allowing them to drive in a competitive environment. Due to the frigid weather conditions, only one of three vehicles completed the entire endurance race; two out of the three, however, we able to compete in the Big Air competition. Under the circumstances, the team was still able to finish in the front half of the competition.

For the remainder of the semester, the team will continue to prepare for the national and world SAE competitions which begin in May.

Baja SAE Tennessee (water competition): May 1-3

Baja SAE Illinois: May 29-30

Baja SAE Montreal (World Challenge): June 11-14

The 2008 vehicle will be the most risky and innovative design in MSU Baja history. The new design includes a four-wheel drive, hydrostatic drive train which will be a true test of the team's engineering.

Check out the MSU Baja website to stay updated on the team's activities and don't forget to stop by the team's display at SAE World Congress in Detroit April 14th – 18th. www.egr.msu.edu/baja Submitted by Emily Duszynski, Public Relations

American Society of Mechanical Engineers



The American Society of Mechanical Engineers (ASME) is

dedicated to helping students create a connection outside the classroom and get the jump start they need into the work place. ASME sponsors many events and is known for bringing in big name companies to speak. ASME is bigger than ever this semester with our participation in Michigan State's Engineers Week ("E-Week") which ran from February 17th to the 23rd. E-Week is an entire week dedicated to helping MSU students get involved within the engineering community. During E-Week 2008, engineering student organizations hosted many events along with the multiple companies that participated in this year's Engineering Expo. ASME started E-Week off with a bang when two teams battled on the ice at Munn Ice Arena in ASME's and BMES's annual broom ball extravaganza in which students play one of hockey's largest pick up games minus the skates and the pads. Students from many organizations took to the ice wearing shoes, and they seized sticks fixed with rubber paddles. This year the blue team annihilated the competition racking up 15 points over the red team's 3 points. Sorry Nabeel! (ASME President).

The Engineering Expo can have many students stressed over the

pressure to get that coveted summer internship or co-op. To relieve some of that stress ASME hosted MSU's first ever JUNK YARD WARS on Friday the 22nd in IM West's indoor tennis courts. The event was designed to have student groups compete in a friendly and social competition where they had 90 minutes to design, construct, and test their contraptions. This year five groups, NSBE, IEEE, Pi Tau Sigma, and two graduate student groups showed up to build catapults in hopes of shooting a golf ball the farthest. The groups had no idea what they were building until the build clock started running. Food, beverages, and of course supplies were all provided. Supplies consisted of 2 x 4's, 1 x 3's, PVC pipe, bungee cords, springs, hand saws, and much more. Each group had a chance to launch their golf balls for three trials. The event ran very smoothly and in the end one graduate group seized the day, winning Junk Yard Wars over IEEE by three feet. ASME is making this an annual event in the future so don't be upset if you missed out this year.

Considering joining ASME? Becoming a member of ASME is beneficial and easy to do. Membership links you to great career opportunities that other engineering students don't have. ASME members gain valuable teambuilding skills and provide members with the chance to network with industries and faculty.

Having trouble catching an internship or a co-op? Joining a group such as ASME gives you a great resume builder and that competitive edge that sets you apart from the rest. One of the best benefits of joining ASME is access to over \$100,000 in scholarships that only ASME members can receive! To become a member, just visit our website at www.egr.msu.edu/asme or go to 2328K EB to pick up and submit your application. Membership is FREE for freshmen, so don't wait until next year to join. Not a freshmen? Membership is only \$30 per year, with \$5 of it going towards the MSU chapter to help finance events, presentations, and the free food and drinks provided at these gatherings. There is also an ASME general meeting scheduled for after spring break where all of your questions can be answered by our E-Board members.

Besides the great connections to companies and scholarships, ASME members receive a subscription of the *Mechanical Engineering* magazine and get to attend all ASME events to find out company presentation dates, suggest companies that interest you, or just give your personal feedback. Want to get more out of ASME? Want to get your voice heard around the panel, other clubs and societies, or even throughout the college of engineering? Then you should consider running for an officer position. Helping run a society such as ASME gives students a great deal of real-world experience and looks even better on a resume. Officer elections are held in the spring semester, and these positions need to be filled as graduating officers leave. So get involved with ASME and the college of engineering and make the most out of your MSU education. ASME members help create new programs that benefit not only current MSU students but future MSU students as well. Visit www.egr.msu.edu/asme for further details on meetings, events, commu-



ASME's Junk Yard Wars. (From left) IEEE (2nd place), NSBE (3rd place), graduate group #1 (5th place), graduate group #2 (1st place), and Pi Tau Sigma (4th place).

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MSU Solar Car Team



What will you be doing this summer? Twelve Michigan State students will be driving 2400 miles across the United States and Canada in a car that they built – a car that runs without a single drop of gas. The Brasidius, Michigan State University Solar Car Team's inaugural vehicle, is on track to join 26 other solar cars in the 2008 North American Solar Challenge this summer.

The Challenge is a nine-day solar car endurance race from Dallas, Texas to Calgary, Alberta. During the race, each UFO-like car will drive amongst ordinary traffic at highway speeds, being propelled solely by renewable solar energy collected from its eight square-meters of solar panels.

Solar racing – commonly called “raycing” – has advanced a long way since its beginnings about 20 years ago. Emerging from a hodge-podge of hobbyists and environmental enthusiasts, it has grown into a high-tech competition driving the cutting edge of solar technology and automobile efficiency. As an emerging team, Michigan State has an exciting challenge ahead competing against teams with decades of experience.

Following success in the North American Solar Challenge, the team will begin work on the Brasidius II; they may also take the car to the World Solar Challenge in Australia. In order to find out more and get the latest news, visit the team's website at www.egr.msu.edu/solar. Submitted by Rick Pocklington, Michigan State University Solar Car, Team Secretary



PHOTO PROVIDED BY R. POCKLINGTON

Back Row: Nick Patino, Zach Puplis, Ryan Blake, Rick Pocklington; Middle Row: Jackie Matheny, Lindsay Karn, Allen Eyler, Bryan Wagenknecht, Dave Cain, Arthur Matteson, Jeff Vanandel; Front Row: Dan West, Nick Schock; Not Shown: Advisor Dr. Müller

Formula SAE



Car 51, MSU's newest Formula SAE car is well underway and the 2008 season is looking to be an exciting one for the Formula Racing Team. Team members have been quite busy throughout the fall and over winter break, juggling school, manufacturing, outreach and public relations duties.

A highlight of the winter months for the team is showcasing MSU's recent racing accomplishments at the North American International Auto Show (NAIAS). For the past three years, thanks to a generous sponsorship from the Detroit Auto Dealers Association, the team has had the privilege of showcasing MSU's racing creations to the world. Partnering with several additional corporations helped make 2008 our best year at NAIAS yet. Team members had a wonderful time speaking with all of the friends, families and alumni that stopped by the display in Cobo Hall.

Testing and fine-tuning of Car 51 will continue for the next several weeks in preparation for the three upcoming US-based SAE competitions: Formula SAE VIR, Formula SAE MIS and Formula SAE West.

For more information about the team or competitions, please visit www.msuformularacing.com.



PHOTO PROVIDED BY ADAM ZEMKE

Formula Racing Team display at the 2008 NAIAS

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nity service, membership and more. And don't forget about “The Gathering” (TG) this semester at Dr. Somerton's house. TG is scheduled for April 18th and undergrad and graduate students will converge around some of East Lansing's finest food. Submitted by Louis Cervone, Newsletter Editor

ME Senior Electives for 2008-2009

- The following ME Senior Elective list, including instructor assignments, was accurate as of February 29, but it is subject to change. Important changes will be emailed to you with "ME Bulletin Update" on the subject line.
- Design Intensive courses have an asterisk (*) after the course number.
- Descriptions are provided for courses that are not in the catalog. All others can be found by going to <http://www.reg.msu.edu/Courses/Search.asp>
- The ME department cannot overfill a required course or section to solve a Senior Elective schedule conflict.
- Course override instructions can be found in the shaded **BOX** on page 15.

SUMMER SEMESTER

- ME 491 **Refrigeration.** Section 201 only. 3(3-0). Requires Override→See #1 in box. Prereq: ME 201. *Description:* Refrigeration principles and systems, including vapor-compression, absorption, and others like thermoelectric, Sterling, solar cooling; cycle components (heat exchangers, compressors, and expansion valves), preliminary cycle and component analysis. Practical issues and current R&D effort, will be addressed. *Mueller.*
- ME 490 **Independent Study.** 1-4 credits. Requires Override→See #2 in box. You may reenroll for a maximum of 6 credits.
- MSE 426 **Introduction to Composite Materials.** 3(3-0). Prereq: ME 222. *TBA.*

FALL SEMESTER

- ME 416* **Computer Assisted Design of Thermal Systems.** 3(4-0). Prereq: ME 410 or concurrently. *Somerton.*
- ME 422 **Introduction to Combustion.** 3(3-0). Prereq: ME 332 or concurrently. *Lee.*
- ME 423 **Intermediate Mechanics of Deformable Solids.** 3(3-0). Prereq: ME 222. *Loos.*
- ME 425 **Experimental Mechanics.** 3(2-3). Prereq: ME 222. *Restivo.*
- ME 440 **Aerospace Engineering Fundamentals.** 3(3-0). Prereq: ME 332 or concurrently. *TBA.*
- ME 444 **Automotive Engines.** 3(3-0). Prereq: ME 410 or concurrently. *Schock.*
- ME 456* **Mechatronic System Design.** 3(2-3). Prereq: ECE 345 plus ME 451 or concurrently. *Radcliffe.*
- ME 465* **Computer Aided Optimal Design.** 3(3-0). Prereq: ME 471 or concurrently. *Díaz.*
- ME 477 **Manufacturing Processes.** 3(3-0). Prereq: ME 222, MSE 250, and Tier I Writing. *Thompson.*
- ME 490 **Independent Study.** 1-4 credits. Requires Override→See #2 in box. You may reenroll for a maximum of 6 credits.
- ME 494 **Biomechanics and Heat Transfer.** 3(3-0). Prereq: ME 410 or concurrently. *Biomechanical Concentration & BME Specialization Course.* *Wright.*
- CHE 472 **Composite Materials Processing.** 3(2-3). Prereq: ME 332. *Jayaraman.*
- ECE 415 **Computer Aided Manufacturing.** 3(2-3). Requires Override→See #3 in box. Prereq: ME 451. *Xi.*
- MSE 451 **Microscopic & Diffraction of Materials.** 3(2-3). Prereq: PHY 184. Recommended background: MSE 350 & 381. *For more info*→See #4 in box. *Bieler.*
- MSE 454 **Ceramic & Refractory Materials.** 3(3-0). Prereq: PHY 184. Recommended background: MSE 350 and 381. *For more info*→See #4 in box. *Case.*
- MSE 476 **Physical Metallurgy of Ferrous & Aluminum Alloys.** 3(3-0). Prereq: MSE 250. Recommended background: MSE 310. *For more info*→See #4 in box. *Crimp.*
- ME 812 **Conductive Heat Transfer.** 3(3-0). Requires Override→See #5 in box. Prereq: ME 412 plus GPA of 3.5+. *TBA.*
- ME 830 **Fluid Mechanics I.** 3(3-0). Requires Override→See #5 in box. Prereq: ME 332 plus GPA of 3.5+. *TBA.*
- ME 860 **Theory of Vibrations.** 3(3-0). Requires Override→See #5 in box. Prereq: ME 461 plus GPA of 3.5+. *TBA.*

SPRING SEMESTER

- ME 417* **Design of Alternative Energy Systems.** 3(3-0). Prereq: ME 410 or concurrently. *Somerton.*
- ME 442* **Turbomachinery.** 3(3-0). Prereq: ME 332. *Engeda.*
- ME 445* **Automotive Powertrain Design.** 3(3-0). Prereq: ME 444. *Novak.*
- ME 464 **Intermediate Dynamics.** 3(3-0). Prereq: ME 361. *Shaw.*
- ME 475* **Computer Aided Design of Structures.** 3(2-3). Prereq: ME 471 or concurrently. *Díaz.*
- ME 477 **Manufacturing Processes.** 3(3-0). Prereq: ME 222, MSE 250, and Tier I Writing. *Thompson.*
- ME 478 **Product Development.** 3(3-0). *Requires Override*► See #6 in box. Prereq: ME 361, 477, and Tier I Writing. *Thompson.*
- ME 490 **Independent Study.** 1-4 credits. *Requires Override*► See #2 in box. You may reenroll for a maximum of 6 credits.
- ME 495 **Tissue Mechanics.** 3(3-0). Prereq: ME 222. *Biomechanical Concentration & BME Specialization Course.* *Haut.*
- ME 497 **Biomechanical Design.** 3(3-0). Prereq: None for ME majors. *Biomechanical Concentration & BME Specialization Course.* *Reid-Bush.*
- CE 422 **Applied Hydraulics.** 3(2-2). Prereqs: ME 332 and 391. *Wallace.*
- MSE 425 **Biomaterials & Biocompatibility.** 3(3-0) Prereq: PSL 250 or concurrently and MSE 250. *Biomechanical Concentration & BME Specialization Course.* *Baumann.*
- MSE 426 **Introduction to Composite Materials.** 3(3-0). Prereq: ME 222. *Restivo.*
- MSE 466 **Fracture & Failure Analysis.** 3(2-3). Prereq: MSE 250 and Tier I Writing. Recommended background: MSE 320 and 331. *For more info*► See #4 in box. *Lucas.*
- ME 802 **Advanced Classical Thermodynamics.** 3(3-0). *Requires Override*► See #5 in box. Prereq: ME 412 plus GPA of 3.5+. *TBA.*

OVERRIDE INSTRUCTIONS

- ① **General Procedure:** To request an override for an ME course, complete and submit the ME Override Request Form: <http://www.egr.msu.edu/me/undergrad/forms> [Click on Forms & Handouts]. Please note that the ME department cannot overfill required courses to resolve conflicts with Senior Electives, Other Electives, Integrative Studies courses and employment schedules.
- ② **ME 490–Independent Study Enrollment Procedure:** Find a professor who is willing to supervise your independent study, and discuss your plans with him/her. Complete an *ME 490/490H Enrollment Contract* (independent study form), available in the ME Advising Office in 2560 EB. After you and your professor have completed and signed both sides, return the form to the ME Advising Office for the remaining signatures, override, and enrollment.
- ③ Six seats in ECE 415 have been allocated for MEs who are on record as Manufacturing Option students. If you are one of those students, send an email to Gaile (griffore@egr.msu.edu) and request your override. Be sure to include your PID number and mention that you are on record as a Manufacturing Option student. (To be “on record,” you must meet with Gaile to plan a long-term schedule.)
- ④ ME majors do not need to have taken the Recommended Background courses, but there will probably be a need for some additional background reading. Contact the professor for more information.
- ⑤ Complete the *Graduate Course Override* form, available in the ME Advising Office in 2560 EB. This is a paper form. NOTE: Instructor assignments for some ME graduate courses were not available at press time, but should be available in May.
- ⑥ ME 478 is restricted to MSE and ME majors. Priority for ME 478 is given to MEs who are on record as Manufacturing Option students. (To be “on record,” you must meet with Gaile to plan a long-term schedule.)

Spring Semester Calendar

March 10-21	Scheduled appointments for Computer / Telephone enrollment for Summer 2008. Your enrollment appointment is posted in StulInfo.
March 28	Computer/Telephone enrollment begins for Fall '08 / Spring '09.
March 17	Pi Tau Sigma Event: Senior Elective Night, 6:00 p.m. in 1345 EB.
April 19	Pi Tau Sigma Event: Golf Scramble. Starts at 11 a.m. See page 6 for info.
April 18	ASME Event: Spring Tailgate ("The Gathering") at Dr. Somerton's house.
April 25	Design Day in the MSU Union. See you there!
April 28-May 2	Final Exams.
May 2	University Undergraduate Student Convocation—1:00 in Breslin.
May 4	College of Engineering Undergraduate Commencement Ceremony, 1:30 p.m. in Breslin. Lasts about 2 hours.
May 12-Jun 26	<u>First</u> Summer Session.
Jun 30-Aug 14	<u>Second</u> Summer Session.
May 12-Aug 14	<u>Full</u> Summer Session.
August 13	First Fall 2008 Minimum Tuition & Fee payment due.
August 27	Fall Semester classes begin.
September 1	Application deadline for FE exam in October.

The MSU College of Engineering Design Day

**Friday, April 25, 2008
MSU Union**

**Come and see our students
lead, create, and innovate**

Activities include:

- **Competitions**
- **Presentations**
- **Demonstrations**
- **Awards**



MICHIGAN STATE UNIVERSITY

Dept of Mechanical Engineering

ME Advising Office

2560 Engineering Building

East Lansing MI 48824-1226