Revised AES Program Is a Winner: Students and Alums Applaud Advances in the Program

The new AES curriculum is now a reality, and the response from students and alums has been enthusiastic. In the works for more than a year, the new curriculum was approved by all necessary university level committees by May 2010, with final approval by Academic Council in September of this year. It would not have happened without the input of all stakeholder groups—alumni, students both current and prospective, faculty, and employers. All gave valuable feedback throughout the process.

The graphic to the right shows the overall structure of the new program. First is a central core that all AES students take (99 semester hours). Within this core there are sub-cores in "basic science" and "basic math" taken by all the other engineering students. The "cross-disciplinary engineering" sub-core is a cross section of courses across the College of Engineering. All of these have been selected for AES because they are important in developing a systems outlook on engineering problems. The sub-core marked "AES Spine" is brand new to the program. It consists of three integrated courses at the sophomore, junior, and senior levels, all of which emphasize systems thinking across a number of contexts. Finally—and a strong distinguishing point about AES—the "basic business" sub-core provides AES students a 15-semester-hour grounding in business from courses our students take in the MSU Broad College of Business.

Sitting as four satellites in the AES program are the finishing concentrations that supply part of the depth for AES studies. A given student selects one of the four areas in which to complete the AES degree. All are aimed at develop-

Monica Braman is very organized. "It is almost a curse," says Braman. However, her organizational skills have helped her achieve success since she graduated with a BS degree in Engineering Arts, now AES, in 2003.

This fall Braman received the Distinguished Young Alumni Award from the MSU Alumni Association. The award is given annually to alumni who have distinguished themselves by obtaining a high level of professional accomplishment and who possess high standards of integrity and character.

Braman is a systems and test engineer for proprietary programs at The Boeing Company in St. Louis, Mo. She currently is working on a short-term project in Las Vegas, Nev. Braman previously worked as an avionics engineer with a focus in electronic warfare and holds a government security clearance. She has won many company honors and awards.

She believes the skills learned for her BS degree have helped in her career. "I have the technical skills to be an engineer, but it’s not typical for engineers to be able to relate to..."
T he first semester under the new AES curriculum is now past. Thanks to the help and support of the AES Alumni Advisory Board, the AES student body, and the AES teaching and support staff, we are off to a good start! Professor Ron Rosenberg’s course on globalization (AES 210) kicked off the implementation of the new sequence of three, 3-hour courses that constitutes the AES backbone. Dr. Rosenberg is our AES associate director, and a “mover and shaker” for developing high-leverage ideas that are now implemented in AES 210 and throughout our revised AES curriculum.

The three courses span students’ sophomore, junior, and senior years.

For the sophomore, Professor R (as the students in 210 know Dr. Rosenberg) focuses on student development of a systems understanding of globalization issues. The systems perspective is built up through the term around three dimensions: economic drivers, environmental constraints, and enablement by engineering.

Through a series of Thursday guest lecturers from across the MSU campus students get a deep look into factors that play into globalization. For example, Carl Liedholm, professor, Department of Economics, addresses issues of global economics and the reduction of trade barriers. Paulette Stenzel, professor, Department of Finance, addresses the legal environment of business and the development of sustainable commerce. Charles Ballard, professor, Department of Economics, addresses factors of the Michigan economy in the global system, while Larry Drzal, MSU University Distinguished Professor of chemical engineering and materials science and director of the Composite Materials and Structures Center, explains some of the global energy factors in the 21st century.

Complementing these guest lectures, each Tuesday students meet in small groups to integrate the knowledge gained from the speakers. In part these Tuesday sessions develop soft tools for representing complex systems—for example, developing a systems diagram of the global water cycle. In part the Tuesday sessions also focus on the development of communication abilities of the students. Over the course of the term, the students are on their feet on 10 occasions—presenting a talk to their fellow students. All student presentations are taped; students review their own “performances” and critique them for improvement of their communication capabilities. Most of the 210 students come into the class thinking that presentations are easy. As most of us who have watched a recording of our own presentations can attest, once we watch ourselves perform, we know how much we need to improve. At the end of the term students write a reflective, fact-based essay on their improvement as a communicator and as a global citizen.

EGR 210 exemplifies the new AES backbone. Up the line, at the junior level, AES 310 focuses on systems understanding of sustainable systems, on tool development to support quantitative analysis of systems, and on written communication. 310 will be offered for the first time in the spring of 2011. AES 410 is the program capstone course in which students work in teams on real-world problems. This course is a stepping-stone for students—from being a student to being a working engineering. The skills gained in project management and technical goal achievement in 410 set up our students for smooth transition to their first post-graduation jobs. Over time in Integrations we will describe in more detail each of the courses in the new AES backbone.

Bottom line: We are up and running! Over the years to come there will be course and program refinements as we further hone our AES edge, but AES is definitely “on the move.”

Breaking News: Visit our new website at aes.egr.msu.edu.

from the Director

JON STICKLEN

AES Grad (continued from page 1)

the business side of the company. The AES degree gave me those skills. You have to be well rounded to fit in at Boeing, but that is true for most companies today.”

Her advice to current AES undergraduates is to branch out. “Do volunteer work or something outside of the university. Employers want that. There is more emphasis on what you do outside classes. It will set you apart when you are looking for a job.”

As part of the MSU Alumni Association’s Young Alumni Initiative, Braman accepted a leadership position with the Greater St. Louis Alumni Club “because Spartans love Spartans.” She became president of the group, and under her leadership, the club was reorganized and its membership tripled by creating new career and social development events that involved more alumni. Braman has also served on the MSU College of Engineering AES Alumni Advisory Board.

In addition to working full time and being an active volunteer, Braman has completed a master of engineering management at Washington University and earned an MBA from Webster University, both in the St. Louis area. “I worked for Sparrow Hospital all through college and thought I might end up in the medical field,” says Braman “I had no idea what to expect after graduation. I certainly never imagined working for Boeing or aerospace in general.” She is especially grateful to the help she had from the staff in the Engineering Undergraduate Studies Office, including Bernadette Friedrich, Drew Kim, and Thomas Wolff. “They pointed me in the right direction. They are there to help you at any time. Take advantage of their help.”

Braman is the daughter of Barb and Joe Braman, who own a farm in the Dansville area. She also has 3 brothers—Chris, Todd, and Shawn—and one sister, Lisa.

— Jane L. DePriest
Dear Fellow Applied Engineering Sciences/Engineering Arts Alumni:

As the chairman of the Applied Engineering Sciences Alumni Advisory Board, I have seen firsthand how active alumni involvement can positively impact the AES program, its students, and alumni. For example, a few weeks ago, many AES alumni met with current AES students at an informal, evening gathering at the Engineering Building. Between bites of pizza, the students peppered us with all types of questions ranging from possible career paths to recommended MSU curriculum. As another example from last winter, some of us old-timers spoke at a freshman/sophomore question and answer dinner for students considering AES as a major. While I hadn’t “enjoyed” dorm food like that for a couple of decades, the student interaction was rewarding. I strongly encourage AES/EA alumni to get involved with the current AES program.

One excellent area of need is with some of the concentrations that are in place or being considered for the AES major. In particular, we are setting up small ad hoc groups of AES/EA alumni who have industry experience in the following areas: (1) telecommunications, (2) medical/hospital management, (3) law, and (4) technical sales/technical support/marketing. If you are active in any of these fields and are willing to participate in a few telephone conferences over the next year, then we would be very interested in hearing from you. No long-term or time-consuming commitment is needed, and we are not looking for a monetary donation (how often do you hear that?). We merely seek your real-world feedback that will positively impact the curriculum development and career advice for current and future AES students.

Another fulfilling opportunity is for student mentoring. Beginning in the 2009-10 academic year, the Student Outreach and Society Support Team of the Alumni Advisory Board worked with the Society of Applied Engineering Sciences to formally set up an AES student mentoring program. It matched up AES/EA alumni with interested students. This has been reintroduced for the 2010-11 academic year. Currently, approximately 10 alumni are participating. This activity entails a couple of e-mails or telephone calls each month or two, to answer student questions and give one-on-one advice. Nevertheless, we desire wider alumni participation in this project, whether it be this year or in future years, depending upon the students’ interest.

Feel free to contact me or Jon Sticklen if you desire to get involved in any of the above or other initiatives—or to offer suggestions and comments. As a very active Alumni Advisory Board, we desire to continuously improve the AES program while also fostering regular communication between alumni, current students, and MSU faculty, to everyone’s mutual enjoyment and benefit.

Contact Monte L. Falcoff (BS Engineering Arts, ’86) at MLFALCOFF@HDP.COM

SAES: Student Society Promotes Active Learning about Careers

The Society of Applied Engineering Sciences is working hard to increase membership and help AES students with mentoring and job applications. General membership meetings have included programs on interviewing skills, a recruiting informational event, an internship panel, and presentations from alumni about their companies. In addition, SAES works with the Student Outreach Committee of the AES Alumni Advisory Board for input on meetings and possible company tours.

The 2010 SAES officers were Tony Caponigro, president; Kelsi Franckowiak, vice president; Brett Neumann, treasurer; Eric Thomas, administrative assistant; Brian Arickx, fundraising chair; Cory Gregory, webmaster.

Unlike other organizations, the officers are selected through an interview process, not an election. The newly selected officers for 2011 are Christine Varley, president; Eric Thomas, vice president; Brian Arickx, treasurer; Dan Allard, administrative assistant; Carl Beamish, community involvement chair; Jason Klug, fundraising chair; and Patricia Gordon, webmaster.

“SAES is a great way to get involved in the MSU community, build your resume, and stand out as a leader,” says Caponigro. “It provides AES students the opportunity to network with classmates, alumni, and employers in a relaxed setting.”
Donors Help Expand AES Program

Thank you to the following donors for their contributions to the AES Discretionary Endowment Fund. This fund was established in 2004 to help build the AES program, support students, and enhance the quality of an AES education. Every effort has been made to include all donors from October 2009 through November 9, 2010.

If you are interested in making a contribution to AES or to learn about other opportunities for giving, please complete the Gift Information on Page 8 of this newsletter, or contact Lyndsay Cook, assistant director of development for the MSU College of Engineering, at lcook@egr.msu.edu or 517-353-9394 or Jon Sticklen, AES program director, at sticklen@msu.edu or 517-353-3711.

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How to Connect with AES on LinkedIn:

The AES Alumni Advisory Board has created a Group on LinkedIn to enhance communication between AES alumni, students, and the College of Engineering. This forum can be used to share results of projects or progress on current issues, and promote upcoming events. Please join us online; we’d love to connect with you!

How to connect:

• Go to www.linkedin.com.
• Log in to your LinkedIn account or create an account if you’re not currently a member.
• Go to the Groups tab and click on Groups You May Like.
• In the Search box to the right, type in AES Alumni and Students, then hit Enter.
• Click the Join Group box to the right.

New Advisory Board Members

The AES Advisory Board welcomes the following new members:

Hardik Dalal (AES ’06) – Dalal is working for Boeing in Seattle.
Eric Seger (Engineering Arts ’94) – Seger works for the Advanced Strategies Group in Novi.
Jonathan P. Wiita (AES ’10) – Wiita works for IBM in Chicago.
The AES program funded 11 scholarships for the 2010-2011 academic year. Funds totaling more than $11,000 came from the AES Discretionary Endowment and other scholarship funds. Here is what some of the scholarship students had to say about the funding:

Kevin Bowen, a fifth-year senior from Lake Orion, Mich.—The scholarship has lessened some of the financial burden that Bowen's education has taken over the years. "In addition, it is nice to be appreciated and rewarded for hard work." He says he "fell" into the major as a freshman and "hasn't looked back since." Bowen is a member of the Society of Applied Engineering Sciences (SAES), and Phi Kappa Phi, and volunteers to teach English for the Language Learning Center. Bowen has had internships in both the manufacturing division of a corporation as well as the sales and customer service division of a company. "These internships provided me with a look at each side of the broad spectrum of the AES major and gave me a good idea of where I want to end up once I graduate and start my career." He is the son of Joseph and Paula Bowen.

Nikia Davis, a senior from Benton Harbor, Mich.—"Receiving the Western Michigan scholarship helped me realize that there are organizations and groups out there that know how much of a burden tuition and other fees for college are. This has helped me focus more on school rather than stressing over if I would be able to continue my education." Davis is involved with the Society of Women Engineers and the National Society of Black Engineers. This past summer she had an internship with The Dow Chemical Company in Midland, Mich., working in the supply chain department. She is the daughter of Debra and Maxwell Davis.

Kelsi Franckowiak, a senior from Traverse City, Mich.—"I am so fortunate to have received a scholarship because this is my last semester at State, so any sort of financial help is greatly appreciate. I believe that receiving this scholarship is a reward for all the hard work and dedication that I have put in for the past four years and a great way to end my college career." Franckowiak is the vice president of the SAES. This past summer she interned with the Nielsen Company in their Emerging Leaders Program. She chose to major in AES because "you get the technical background while also gaining business savvy." She is the daughter of Joel and Debra Franckowiak.

Thomas Gartner, a sophomore from Midland, Mich.—"My scholarship helped me to continue to strive for excellence in the classroom because it really is a reward for doing well. It helps take some of the financial strain off and indeed makes it easier to continue to study hard. I am very thankful for the award." Gartner believe AES is a "perfect fit" for his interest in both business and engineering. He is involved in SAES and participates in intramural sports including soccer, football, volleyball, hockey, and dodge ball. He is the son of Charles and Sherri Gartner.

Aimee Smith, a junior from Redford, Mich.—"This scholarship means that I do not have to stress about buying books for each semester and I am able to just prepare for classes." She believes the AES program will make her more marketable to potential employers after graduation because of the combination of business and engineering. Smith is involved in the Society of Women Engineers. She is the daughter of Teresa Smith.

Students Appreciate Scholarships

Give Back to AES

How can you and your company help the AES program educate outstanding graduates who are prepared to meet the challenges and opportunities of a competitive global economy? Here are a few ideas:

- Volunteer your time to participate in an industry panel or speak at a meeting of the Society of Applied Engineering Sciences. This group is constantly seeking alums to share their career experiences with current students.
- Serve as a mentor to a current AES student. Students often have specific questions and are interested in hearing advice and guidance from alums who have successful career stories and advice to share.
- Volunteer to serve on the AES Alumni Advisory Board.
- Encourage your firm or organization to financially sponsor an Applied Engineering Sciences program activity. Specifically, the senior capstone projects need companies to either sponsor one of the service projects, which would involve a monetary donation, or to sponsor a project directly, which involves a monetary donation and time to work with students on the project.
- Arrange a field trip to your company, giving students an inside look at a business.
- Use your imagination! We welcome your concerns, questions, or comments.

To start giving back to AES or to discuss all the possibilities, contact AES through Katherine Burdick, administrative assistant, at burdic26@msu.edu.

©
Revised AES Program (continued from page 1)

Of particular note to students, the concentrations in AES will now be officially recognized on the students’ MSU transcripts. This will help students with employment because HR offices in companies will now better understand the skill sets of an AES grad when the transcript is reviewed.

There were 62 AES graduates in the 2009 calendar year, and there currently are approximately 140 students enrolled in AES. Most of our current juniors and seniors are enrolled in the supply chain concentration. “Our goal is to maintain the number of students in supply chain and grow the program by bringing some of the freshmen and sophomores into the other concentration alternatives,” says Jon Sticklen, director of the AES program. “By attracting more students from within the College of Engineering and on campus in general, and especially by aggressively letting high school students—and their parents—know about AES alternatives, we project enrollment of AES to be 200 students by 2015.

The introduction of the new program to students has gone smoothly. However, Sticklen notes that there have been some growing pains. “The process now becomes one of constant feedback and incremental improvement,” says Sticklen. “I definitely welcome any feedback from current students, alumni, or others interested in the AES program about our new curriculum,” Sticklen notes.

Alumni Update

This is the first column about AES alumni around the country and around the world. If you have a new job, have started a new career, have received a promotion, or are involved in an interesting activity in your area, please let us know. You can complete the Keeping in Touch info on page 8 and return as indicated, or contact Maura McDonald, chair of the Alumni Outreach Team for the AES Alumni Advisory Board at maura.f.mcdonald@gmail.com.

Andrew Adams (BS AES 2010) is proof that there are good jobs out there for young graduates. He is working for Cooper Industries at their B-Line division headquarters in their rotational Operations Leadership Program (OLP). Cooper B-Line is a leading manufacturer of quality support systems and enclosures for the electrical, mechanical, and telecommunications industries.

“I just finished the manufacturing engineer rotation, and am now a production supervisor in the fastener press department and packaging,” says Adams, who lives in St. Louis, Mo., but works in Highland, Ill., which is about 35 minutes east of St. Louis. And Adams’ personal life is going well, too. He recently got engaged to his girlfriend who is finishing up a master’s degree in human resources and labor relations at MSU.

Another recent graduate is Jon Wiita (BS AES 2010), whom some students may remember for his involvement in SAES and other program activities. He is working at IBM Global Business Services as a strategy and transformation consultant based out of Chicago. “I am currently on a really cool and exciting project as a data analyst in downtown Chicago. The project is an IBM Smarter Cities project called CityForward.org,” says Wiita. “We just launched the site so it should be cool to share a tangible product one of us has worked on with the AES community.”

He explains that City Forward is a free, web-based platform that enables users, including city officials, researchers, academics, and interested citizens world-wide to view and interact with city data while engaging in an ongoing public dialogue about cities. “It has been a great experience so far because I have had the opportunity to perform a cross-functional role on a daily basis in IT development and data analysis for the site,” says Wiita.

Not only does he have a cool job, but Wiita is living in one of Chicago’s coolest neighborhoods, Lakeview, which encompasses Wrigley Field, home to the Chicago Clubs. “I have really enjoyed living in Chicago. I spend most of my time finding new restaurants, going to concerts, and watching the MSU games with other Spartans in one of the many bars here. No matter where you go in the city it is easy to find MSU alumni.”

And alumni who have been in the workforce longer also are having good experiences with their AES degrees. After a 19-year career with Dow Chemical, Maura (McBride) McDonald (BS Engineering Arts ’87) recently joined Dow Corning Corporation. Her new opportunity began in IT supporting the Global Trade Services (GTS) module of Systems Applications and Products (SAP) and then transitioned to a role in Legal and Compliance. “My AES degree continues to serve me well as I balance the business needs of regulatory compliance with the technical background of chemistry and information technology,” says McDonald. She and her family live in Midland, Mich.
Bringing the Program Together

The AES program is evolving, and five key people are helping to make that happen.

A warm welcome to Katherine Burdick who is handling many administrative duties for the AES program. She graduated from MSU in December 2009 with a major in graphic design. She worked for MSU Recycling Center before coming to the College of Engineering. “I hope I can improve the visibility of AES in the College of Engineering and develop its identity through design and promotion,” says Burdick.

Kevin Bowen, a fifth-year senior in AES, was hired as the AES webmaster at the beginning of the summer of 2010. “I was brought on to create, format, and detail the new website and help bridge the gap between the perspectives of faculty and students,” says Bowen, who will graduate in December. His post-graduation plans are indefinite at this point, but he would like to teach English abroad in either Japan or South Korea—or perhaps give scuba lessons and tours in the Bahamas or Indonesia. Like most AES grads, Kevin already has several very good offers from companies. He is weighing his options.

Most AES undergrads know Amanda Idema. She is director of advising for the College of Engineering, which means she oversees all the academic advising for the college (about 2800 students, seven full-time advisers, and one graduate student adviser), as well as much of the academic services for the undergrad students. “I also specifically advise students in the AES major, assisting them with their educational planning,” says Idema. “This can range from scheduling courses, to planning for co-ops and internships, to helping students make decisions about graduate school and research opportunities.” Idema recently received a PhD in higher education from MSU. Her research was in the area of women’s educational history and organizational theory.

Ronald Rosenberg is a familiar face in the College of Engineering. He is now the associate director of the AES Program, and associate dean for special projects. He’s also teaching EGR 210 (Global Systems) and EGR 310 (Sustainable Interests). Rosenberg originally was a mechanical engineering professor and has served in many capacities in the college over the years including chairperson of ME and associate dean for research and graduate studies. One of his research interests is the role of computer games in active learning environments.

Jon Sticklen is the director of the AES program as well as director of the Center for Engineering Education Research (CEER). Sticklen has been at the helm of AES for two years. Prior to that, he was an associate professor in the Department of Computer Science and Engineering and a special assistant to the dean on instructional technology and engineering education research. His “can do” spirit has been responsible for many updates in the program in the last few years.

MSU Formula SAE Racing Team Showcases Projects at Detroit Auto Show

Thousands of visitors to the North American International Auto Show (NAIAS) visited the MSU Formula Racing Team exhibit and met the students who will one day design, manufacture, and market the “concept cars” displayed at future NAIAS shows. Traditionally student formula race teams are made up of mechanical engineers, but this year the project manager for the MSU Formula racing team is an AES major.

“Formula SAE has broadened my education by allowing me the opportunity to apply my thoughts and ideas to a real-world application,” says Joshua Frontiera, an applied engineering sciences junior and project manager for MSU Formula Racing. “In Formula, there are always difficult problems and no one else to fix them but yourself. Members of the FSAE team have an advantage as we enter the working environment—we’re already prepared to identify problems and develop working solutions quickly.”

The team is made up of about 20 primarily undergraduate students with majors ranging from supply chain management to mechanical engineering to economics. In May, the team will join more than 125 student groups from around the world at Michigan International Speedway in competitions that test the design, efficiency, endurance, and performance of the vehicles they have engineered.
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