

BIO SYSTEMS

ENGINEERING

DEPARTMENT OF BIOSYSTEMS AND AGRICULTURAL ENGINEERING
FARRALL HALL

FALL 2004
MICHIGAN STATE UNIVERSITY

Message From The Chair

Greetings from East Lansing.

As we prepare for the start of a new academic year, we look back at the year gone by with a tremendous sense of accomplishment. We have completed the Challenge 2007 strategic planning document which we have been working on for the last several years. One of the significant outcomes of the process has been a proposal to change department's name to the *Department of Biosystems and Agricultural Engineering*. The University approved our name change effective July 1, 2004. This is remarkable as we were last among our peers to change department name. The mission of the department of Biosystems and Agricultural Engineering is *to improve peoples' lives by integrating and applying principles of biology with engineering and technology in food, agriculture, and ecosystems through teaching, research, and extension/outreach programs.*

As a part of the plan, we developed a new B.S. in Technology Systems Management (TSM) degree program. The program was approved by the University after a State-wide review. The program is designed to meet the needs of food, agriculture, natural resources, and environmental industries for qualified technology managers. It is designed to be highly synergistic with Biosystems Engineering and the Electrical Technology certificate programs in the department. TSM courses will be offered for the first time in Fall 04. Enrollment in our Biosystems Engineering (BE) program is over 100, however, the goal is 125. We have taken some definite steps to help us achieve our goal. We have created, with support from the College of Agriculture and Natural Resources, a center for student professional development and have hired Ms. Hope Croskey on a part-time basis. Many of you perhaps know Hope who graduated from our department with B.S. ('77) and M.S. ('78) degrees is agricultural engineering. She decided to take an early retirement after 24 years with Michigan Department of Environmental Quality (MDEQ) where she was the head of the Land and Water Management Division. She is a registered Professional Engineer (PE) and a Certified Floodplain Manager. In addition to teaching the BE capstone design sequence, her responsibilities include student recruiting, retention, internships, coops, job placement, and program outcome assessment as required for accreditation by ABET. Her efforts are already paying off as 21 out of 24 seniors had definite offers at the time of graduation in May '04. Speaking of the accreditation, we are due for a visit in October

2004. Needless to say, we have been busy preparing the self-study report and getting ready for the visit.

The *Challenge 2007* plan calls for the department to sharpen its focus on two areas and divest from many areas where expertise is available through regional cooperation. The Department will focus on ensuring food quality, safety, and biosecurity; and enhancing the environment and conserving natural resources. Thus, all teaching, research, extension/outreach programs will be aligned with these two strategic directions. The department faculty will strive to achieve a high level of integration in learning, discovery and engagement activities, an essential element in a down-sized department.



Dr. Bill Stout, 2004 College of Engineering Distinguished Alumnus

We were very pleased to honor Dr. Bill Stout (M.S. '55, Ph.D. '59) as the 2004 College of Engineering Distinguished Agricultural Engineering Alumnus. His many accomplishments and professional service make him a worthy recipient of the award. This was the first year the College honored one distinguished alumnus from each department in a formal 'black tie' event in May. The Department also recognized three other distinguished alumni during the annual BE Showcase luncheon in April. They are Dr. Carl Hall (Ph.D. '52), Dr. Arthur Gold (Ph.D. '83), and late Mr. Allison Blanshine (B.S. '43). It was also the first year that the Department gave out these awards to these highly deserving alumni. We are also looking for nominations for Outstanding Alumni Awards as well. So, please refer to the nomination form within the newsletter and nominate someone for these awards. In two years, as the second oldest Department in the country, we will be celebrating 100 years of excellent service to Michigan, the country, and the world. While we are excited about this milestone in time, we are aware of the responsibilities we have to continue the legacy of excellence in the future. We are taking this responsibility seriously and are taking steps to ensure that we remain relevant and continue to aspire for excellence. We would like to form a committee of alumni and friend to help plan the centennial events. Please let me know if you would like to serve on this committee.

Finally, we are going to publish two newsletters per year, one in fall and the other in spring. So look for the spring issue around April/May. As always, thank you for your continuous support. Please regularly visit our website and stay in touch. Have a great year.

Respectfully,
Ajit Srivastava
Professor and Chairperson

2004 AE Distinguished Alumni Award

The Department is proud to recognize three alumni as 2004 AE Distinguished Alumni. This is the first year the department began this recognition program. These awards were presented during the annual BE Showcase luncheon. The awards are given to those alumni who have made significant contributions to the profession of Biological/Agricultural Engineering.

Allison W. Blanshine (deceased)

Allison (Al) Blanshine was born in Muskegon, MI in 1919, and graduated from the Department of Agricultural Engineering in 1943. His primary interest was in designing improved agricultural production machinery. He has over 30 patents to his name. The most profound is the "New Holland" round Baler, others being improvements to the Sugar Cane Harvester, the modernization of the Corn Picker, and a completely newly designed 10 ft. PTO driven Windrower. During his career he worked for such companies as J. I. Case, The Oliver Corp., Hawaiian Sugar Cane Planters Association, New Holland Corporation, and he was a consultant for the Egyptian Ministry of Agriculture.

Al was also a husband, and father of three sons. He and his wife, Hazel, helped to support their sisters and their families that circumstances had left stranded without adequate self-support. Al along with Hazel was a 47 year member of his church, he was also a member of the American Society of Agricultural Engineers (ASAE).



Truman Surbrook presents Mrs. Blanshine with the alumni award while James Blanshine and Ajit Srivastava observe

Carl W. Hall, Ph.D.

Dr. Hall came to MSU in 1951 as an instructor, transferred credits to earn his PhD in agricultural engineering in the Department in 1952. Between 1952 and his departure from MSU in 1970, Dr. Hall emphasized the significance of biology in engineering, initiated the animal waste management program, and the electrical technology program. He taught courses in processing of agricultural and food products. He served as department chairperson from 1964-1970. During his tenure at MSU, Dr. Hall advised fifty graduate students. In 1970 he left for Washington State University where he served as the dean of engineering, and professor of mechanical engineering until 1982.

He joined to the National Science Foundation in 1982 as deputy director and helped establish the Engineering Directorate. He was responsible for design of the program and obtaining support for the

Engineering Research Centers that became a pattern for university, government, and industry support. His work has taken him to South America, Russia, Nigeria, Indonesia, India, Japan, and to several countries in Western Europe.

During his outstanding career Dr. Hall served as the president of the ASAE, vice president of the ASME, and CIGR, he also stayed active in ABET, NSPE, ASEE, and AIBS, just to name a few. He is author/coauthor or editor/co-editor of 28 books and written more than 400 articles and papers. His specialty areas have been drying, energy, and biological aspects of engineering.



Carl W. Hall

Arthur J. Gold, Ph.D.

Dr. Gold received his PhD Agricultural Engineering Technology from the Department in 1983. Since then his primary research focus has been the assessment, modeling and control of non-point water quality pollutants. He is interested in the assessment and modeling of watershed processes. Recent studies have been conducted on nitrogen losses to groundwater from rural and suburban land uses, as well as on the role of wetlands and riparian zones in pollution abatement. He has written more than 50 publications and awarded over \$3.5 million in research funding.



Art Gold

Art has spent his academic career at the University of Rhode Island where he is an active researcher and teacher. In 1988 he added an extension component to his duties and initiated a water quality extension program that targets watershed management practices for local decision makers and the public. The program has attracted more than \$5 million in outside funding and now includes 10 staff.

Dr. Gold has served as Associate Editor of the Journal of Environmental Quality and has worked with the Science Advisory Board of the EPA. He has received the Research Scientist of the Year Award, the Outstanding Teaching Award, and the University of Rhode Island's Scholarly Excellence Award, the highest award bestowed by the University.

Congratulations to:



On April 1st, 2004, **Dr. Evangelyn Alocilja** was given the College of Engineering's Certificate of Appreciation in recognition of five years of caring and dedicated service as advisor to the MSU student chapter of the Waste Management Environmental Research Consortium (WERC).

This year, Dr. Alocilja was advisor to two highly talented graduates: Tracy Kamikawa, recipient of the MSU Board of Trustee Academic Achievements Award and a National Science Foundation Graduate Fellowship, and Marita Sheldon, recipient of a National Science Foundation Graduate Fellowship. Furthermore, Tracy and Marita are the only undergraduate students at MSU this year to receive the NSF fellowship award. You must be a special faculty member Dr. Alocilja, to have two exceptional students as their faculty mentor. This is a first at MSU.



Congratulations to **Dr. Kris Berglund**, a University Distinguished Professor, for receiving four U.S. patents. They are: "**Windshield Washer and Deicer**," U. S. Patent 6,635,188, Oct. 21, 2003.

"**Water-activated, Exothermic Chemical Deicing Formulations**," U. S. Patent 6,623,657, Sept. 23, 2003.

"**Nail Polish Lacquer Remover**," U. S. Patent 6,630,431, Oct. 7, 2003.

"**Process for the preparation of a N,N-diamino amino acid-.beta.-hydroxy disuccinic acid**," U. S. Patent 6,649,793, Nov. 18, 2003.



Dr. William Bickert received a grant from the Animal Initiative Industry Coalition, for his project entitled "Evaluating Biogas Production and Quality of Commingled Streams of Selected Wastes and Applying the Results to Agriculture."



Dr. Daniel Guyer received a grant from the MAES-GREEN for his project entitled "Fruit Cooling-Water Usage Issues."

Dr. Guyer received a grant from Integrated Pest Management for his project entitled "Development and Optimization of Pre and Post Harvest Pest Control Strategies in Cherries: A Multi-Tactic Approach."

On January 14, 2004, Voice of America (VOA) in Mandarin China, interviewed **Dr. Kirk Dolan**, Assistant Professor with joint appointment in the Department of Food Science and Human Nutrition and in the Department of Biosystems and Agricultural Engineering, and Eric Graf, M.S. student in Food Science. The interview came about after a VOA broadcaster received a gift box of MSU cheese. VOA called MSU to inquire about the MSU Dairy Plant, and how students gain hands-on learning about food science and food processing outside of class. The interview was part of an on-going VOA series called "Youth & Campus." The interview lasted 25 minutes, and was conducted in Mandarin by conference call from Washington, D.C. to E. Lansing at 6:30 AM to allow live call-in questions from listeners from China. Listeners called from Hubei, Zhejiang, Fujian, and Jiangsu Provinces.



Dr. Dolan received a grant from the National Research Institute for his project entitled "Modeling Thermal and Mechanical Effects on Retention of Nutraceuticals in Extruded Foods".

Dr. Timothy Harrigan received a NCR-SARE grant to conduct research on manure slurry enriched micro-site seeding. Dr. Harrigan's proposal was ranked 7th out of 40+ proposals!



Dr. Harrigan received a grant from The Animal Initiative Industry Coalition for his project entitled "Integrating Environmentally Responsible Manure Use and No-Till Forage and Cropping Systems with Low-Disturbance Aeration Tillage."

Dr. Ajit Srivastava, Professor and Chairperson of Agricultural Engineering, received the 2003 Dennis M. Fenton Distinguished Graduate Alumni Award from Cook College, Rutgers University. Ajit received the award based upon his outstanding professional achievements in the area of machinery systems for food production and processing. The award was presented on October 25, 2003 in New Brunswick, NJ.



Dr. Ajit Srivastava, received a grant from the USDA-ARS for his project entitled "Imaging Spectroscopy for Assessing Quality of Apple Fruit."

Dr. Gary Van Ee, received a grant from the USDA for his proposed project entitled "Control Wheat Scab with Improved Fungicide Application Technology."



Congratulations to:



Dr. Brad Marks on receiving one of six Teacher-Scholar Awards presented by MSU. The Teacher-Scholar Award recipients were recognized at the annual Awards Convocation on Tuesday, February 10, 2004. It is a well deserved University-wide recognition for Brad and an honor for the Department. He was presented the award and a stipend at the university awards ceremony by MSU President Peter McPherson.

The honor is awarded to faculty who early in their careers have earned the respect of students and colleagues for their devotion to, and skill in, teaching and who have shown scholarly promise. Bradley P. Marks is nationally recognized for his teaching and research in Biosystems Engineering and food safety. His colleagues and peers appreciate his blend of high scholarly standards and care for students. He is the departmental leader in curriculum improvement and instructional innovations and has been called "a teacher of teachers."

Dr. Brad Marks has received a research grant from the Rackham Foundation. This is a three-year grant and of the many proposals that were submitted only four were funded. What an accomplishment!

Dr. Marks, was an invited speaker at the National Academy of Engineering's Seventh German-American Frontiers of Engineering Symposium in Washington, D.C., April 29 - May 1, 2004. Dr. Marks spoke on the topic of "Food Processing to Ensure Food Safety".



Every year, each department in the College of Engineering selects one faculty member to receive the Withrow Award for Teaching Excellence. This year the honor went to **Dr. Robert von Bernuth**. He was honored at an awards luncheon on April 1, 2004

Dr. von Bernuth has had a positive impact on many students in the BE program over the past decade and the students recognize and appreciate his dedication. He is recognized for contributions and efforts in and outside the classroom.

Congratulations Dr. von Bernuth for your distinguished service to the department, student body and university!

New Faculty/Staff:

Hope Croskey joined the department on a part-time basis as a Visiting Instructional Specialist. Ms. Croskey will be involved in teaching, student professional development, recruiting, retention, internships and co-ops, and job placement activities. She will also play a critical role in the outcome assessment as required by ABET.



Jim Schrandt joined the department as a part-time Visiting Specialist working with outreach programs and the Michigan Agricultural Electric Council (MAEC).

Steve Miller joins the department as a part-time Visiting Instructor. Steve received his M.S. in Civil Engineering and B.S. in Agricultural Engineering from Michigan State University. Steve is teaching ATM 431 and is currently involved in the development of a statewide groundwater inventory and mapping project and groundwater use issues. Steve is currently collaborating with the Institute of Water Research on several grants. Steve came from the Michigan Department of Environmental Quality where he served as Chief, Wellhead Protection, Drinking Water Program. He also served as the Department Geographic Information (GIS) coordinator.



Alumni News:

Yoav Sarig (PhD, '76) is retired from the Institute of Agricultural Engineering and was nominated as Vice President for Academic Affairs at the Academic College of Engineering, Tel Aviv, Israel.

Phil Noakes tells us he and his wife Debbie have two daughters Amanda and Madison. Phil is working at Kraft Foods in maintenance and plant engineering area.

Joseph Bornstein (MS '49) is involved in numerous interesting activities, cardiac visitor at medical center, RSVP, Burlington-Bethlehem-Avad Sister City Program and Photo Cards of Vermont, a business venture, and more.

Danielle Bellmer is a faculty member at Oklahoma State University and was recently granted tenure. She was honored with the Halliburton Outstanding Young Faculty Member award. She is involved with several projects ranging from biomass-based energy to developing new food products.

Neba Ambe (PhD '96) was ordained as a Deacon at the Holy Name Cathedral in Chicago, Illinois.

John Boldt, PE, (BS, '61) recently retired after 21 years as the Collier County Stormwater Management Department Director. He is relocating to Colorado Springs, Co. John has been named the first Director of the Association of Christian Design Professionals. The ACDP serves as the prayer and financial support for Engineering Ministries International. EMI is a group of volunteer engineers, architects and land surveyors who offer a free technical design service to Christian missionaries serving the poorest of the poor in 3rd world countries. The design services are provided on short-term mission trips or "Vacations with Purpose". The ministry is over 20 years old and has worked on some 400 projects in 80 different countries. The EMI website is www.emiusa.org. John's email address is john.boldt@emiusa.org.

College of Engineering's Academic Awards and Service Awards Reception April 1, 2004.

Shane Bennett, Tracy Kamikawa and Daniel Sparks received the Undergraduate Academic Award in Biosystems Engineering. This award recognizes the top three percent of juniors and seniors in each department with cumulative grade point averages of 3.5 or above and sophomores in the top one percent of their class.

Maria Suparno received the Graduate Student Awards. Dr. Kirk Dolan is her major professor.

Johanna Nugent, received the Undergraduate Service Awards by Dr. Thomas Wolff, Associate Dean for the College of Engineering. This award recognizes juniors and seniors who have made valuable contributions to the College of Engineering.

Shannon McGraw, was chosen as the College of Engineering 2003-2004 Ambassadors for Biosystems Engineering.

2003-2004 Biosystems Engineering Graduate Scholarship Recipients

The *AE Endowment Fellowship* was presented to Stephen Radke. Stephen is a Ph.D. graduate student working with Dr. Evangelyn Alocilja in biosensors and safety.

The *Merle and Catherine Esmay Scholarship* was presented to Jianwei Qin. Jianwei is a Ph.D. graduate student working with Dr. Renfu Lu in fruit and postharvest quality.

The *Bill and Rita Stout Scholarship* was presented to James Wallace. Jim is a Ph.D. graduate student working with Dr. Bill Bickert in manure management area.

2003-2004 Biosystems Engineering Undergraduate Scholarship Recipients

The *F.W. Bakker-Arkema Minority Scholarship Award* was presented to Kevin Belen.

The *A.W. Farrall Faculty Award* was presented to Paul Forton and Andrew Knowles.

The *Clarence and Thelma Hansen Scholarship* was presented to Tracy Kerchkof, Andrew Lauwers, Johanna Nugent and Erin Thelen.

The *George E. and Betty L. Merva Scholarship* was presented to Matthew Williams.

The *Howard F. and Esther L. McColly Scholarship* was presented to Shane Bennett, James Bosserd, and Matthew Stasiewicz.

Biosystems Engineering Showcase 2004

The BE Showcase held in April was a huge success. The events were attended by 18 industry representatives from companies such as Kellogg, FMS, Tropicana; agencies such as MDEQ, MDNR; and environmental consulting firms such as NTH, DLZ and others.

The highlight of the luncheon was the awarding of three Distinguished Alumni Awards to the late Mr. Allison Blanshine, formerly with New Holland, Dr. Carl Hall, former Deputy Director NSF, and Dr. Arthur Gold, University of Rhode Island. Many family and friends were on hand to honor the award recipients. This is the first year these awards were given by the Department. Three BE students shared their learning experience beyond the classroom. We were honored to have Associate Deans Foster and Coon attend the luncheon event.

During the Industry Panel segment of the day, the 18 industry reps fielded questions from BE graduating seniors as well as other students in the program and gave valuable advice including how to prepare for an interview and expectations beyond graduation. This session was followed by mock one-on-one interviews where students had a chance to hone their interviewing skills and learn more about the companies that were represented.

Later, seven student groups gave presentations of their capstone design projects, an event that was attended by over 150 people including many parents. The students projects included design, fabrication and testing of a bovine bio-filter for treating water from milking parlours before discharging into constructed wetlands; evaluating pre-treatment options to reduce ammonia levels in leachate from landfills; detection of bacterial contaminants (*E. coli*) in drinking water supply; the design of an educational aquaponics system that combines the practices of aquaculture with hydroponics; development of a high-protein and low-carb pasta using chicken protein, called Chickasta; redesign of football helmet to reduce injuries caused by oblique impacts; and the design of a quarter-scale tractor for entry in the national competition. The student presentations



Reid Shepard, Timothy Long, Andrew Bender and Tolam Nguyen “wear” their design project - Athletic Armor

were in-depth and highly polished. The members of the Industry Advisory Board completed BE program outcome assessment forms after student presentations.

The day concluded with an awards banquet where both graduate and undergraduate students received scholarship awards from the various endowments in the department. The event was attended by over 120 people. Each graduating senior received a reprint of a painting of Farrall Hall as a gift. The students reflected on their experiences as students and took some shots at faculty. We were honored by the presence of the Associate Dean Tom Wolff.

Overall it was an excellent day and we want to thank all faculty and staff who work so hard in making sure that our students get the best educational experience possible. The BE program continues to show quality and strength and reflects on the hard work of faculty and staff. As a side note, 24 students graduated in May as compared to 16 last year. Even in the toughest of economic times, as of April, 14 students had definite job offers, as compared to 1 last year.



The 2004 Biosystems Engineering Senior Design Teams

Student News:

Two Biosystems Engineering Graduates Awarded National Science Foundation Fellowship

The National Science Foundation (NSF) has awarded a fellowship to Tracy Kamikawa ('04) and Danielle McEachin ('02) to help fund their graduate study and research in a college of their choice.

NSF's Graduate Research Fellowship program is recognized for its role in providing prestigious awards to the nation's most promising science, engineering and mathematics graduate students.

Tracy and Danielle will receive a stipend of \$30,000 for a 12-month tenure and an annual cost-of-education allowance of \$10,500, which is paid to the academic institution for tuition and fees, for a maximum of three years over a five-year period.

The NSF fellowships are awarded for graduate study leading to research-based master's or doctoral degrees in the fields of science, mathematics and engineering. Awards are given based on the students' intellectual merit and the impact of their research.

Tracy graduated in May 2004 and Danielle graduated in Fall 2002 with a bachelor of science in biosystems engineering. Danielle is pursuing graduate studies at UC Davis. Tracy worked in Dr. Alocilja's biosensors laboratory.

Congratulations Tracy and Danielle for this achievement!

Recognition for research/manuscript

Studies conducted by graduate assistant Diwan Ariana and research associate Dr. Bim Shrestha, under the direction of Dr. Daniel Guyer, were recently recognized at the 2003 ASAE International Meeting. The research and subsequent manuscript entitled, "*Integrating Reflectance and Fluorescence Imaging for Apple Disorder Classification*" received an IET Select Paper Award from the Information and Electrical Technologies Division of ASAE. Dr. Guyer's team has been working on various concepts to enhance the ability to non-destructively sort raw commodities using spectral and computer vision techniques and analysis. Improvements in automated sorting remain as a high priority with the fruit industry facing challenges with labor, food quality, food safety, and profitability.



Johanna Nugent, a BE senior received the Van Dusen Scholarship from the College of Engineering based on her academic and overall status. She was the sole recipient of this scholarship this year from amongst the top students in each department in the College of Engineering.

Tracy L. Kamikawa, a BE senior was honored in April along with 14 other MSU students by the MSU Board of Trustees for achieving a perfect 4.0 grade point average. Tracy is a member of the Honors College and is the daughter of Ray and Virginia Kamikawa.

Matt Stasiewicz, Biosystems Engineering freshman, was selected as one of six finalists in the Institute of Food Technologists (www.ift.org) National Undergraduate Research Paper Competition. Matt works with Dr. Bradley Marks (Associate Professor of Biosystems Engineering) as a professorial assistant, and gave a presentation entitled "Effect of Heating Rate on Thermal Inactivation of Salmonella in Turkey." The finalists, selected based on written abstracts submitted by students from across the country, gave oral presentations of their research on July 15 at the 2004 IFT Annual Meeting in Las Vegas, Nevada. The IFT Annual Meeting was attended by over 20,000 participants from academia, government, and the food industry, and is the leading professional/technical meeting related to the science and technology of food.

Institute of Food Technologists (IFT) Food Expo

If there was ever a place in the world to lose a national competition that you spent nearly an entire year working on, it is definitely Las Vegas. We are Team Chickasta and we just returned from the Institute of Food Technologists' food product development competition, at the bi-annual IFT Food Expo, July 12-16, 2004.

We chose to write another chapter in the book of the Atkins diet and create a pasta made from the thigh meat of a chicken. The idea and creation awarded us a spot as a finalist along with 5 other universities from around the country. The competition spanned two exhaustive days combining scores from 4 different categories: Written technical report, poster presentation, oral presentation, and product testing

There would be quite a few more exclamation marks and "...and we gambled our winnings on...", had we taken one of the top three spots, but the spot alluded us for reasons unknown, but as a consolation our concept received the biggest buzz from the judges throughout the competition. Team Chickasta suffered a few emotional bruises, but the healing process was brief, because we were such cohesive team led by the tactful diplomat, Dr. Janice Harte.

Biosystems Engineering Freshmen Get a "Taste" of Engineering Design

By: Bradley Marks
Associate Professor, PhD., P.E.

This article first appeared in Currents Magazine, Vol. 3, No. 2 (winter 2004), published by the College of Engineering at MSU

Capstone design experiences in senior-level engineering courses require students to apply the basic knowledge they have acquired over the course of their degree programs to a large-scale, comprehensive engineering design project. In contrast, a unique "cornerstone" course in the Biosystems Engineering program is exposing students to the design process at the beginning of the curriculum. This required course (BE 130), Engineering Design Fundamentals for the Biological Systems, is taught by Bradley Marks, associate professor of Biosystems Engineering, and was introduced four years ago in order to improve student retention and to provide design experiences across the entire curriculum. Traditionally, engineering design experiences have been found only in upper-level courses. Although first-year students are obviously not prepared to complete technically complex engineering designs, they can learn to apply the basic techniques



associated with the engineering design process, and this course actively engages students in this process.

For example, in one of the design projects, teams of BE 130 students were assigned to design, build, and test an apparatus that was capable of accurately weighing objects between 1 and 100 grams in mass and smaller in size than a golf ball. However, as an added twist, the apparatus had to be made of materials that are commonly eaten, and had to be entirely consumed by the team after testing. The purpose of the assignment was for students to complete the entire design process, including selection of design criteria, brainstorming, design analysis and selection, testing, and presentation and documentation of the design--all at a level that is technically appropriate for first-year engineering students. Using edible materials introduced an added constraint that is universal in the discipline of Biosystems Engineering--the variability and instability of biological materials.

After this course, we find that our students move through the rest of the curriculum with a greater understanding of the importance of creativity and teamwork in engineering design, and therefore are better motivated for the core curriculum that adds critical technical competencies to their basic understanding of the engineering design process.

Biosystems Engineering Student Receives Department of Homeland Security Scholarship

This article first appeared in Newsroom, 9/24/2003, published by University Relations, Michigan State University

EASTLANSING, Mich. - Tracy Kamikawa, a Michigan State University Biosystems Engineering senior from Honolulu, Hawaii, is the recipient of one of the U.S. Department of Homeland Security's (DHS) first Undergraduate Scholarships.



Tracy Kamikawa works with her mentor, Evangelyn Alocilja.

The awards are presented to highly talented students interested in pursuing basic science and technology innovations that can be applied to the DHS mission. Funding for the program for fiscal year 2003 is approximately \$2 million.

More than 2,500 students across the country applied for scholarships and fellowships. Applications were reviewed by more than 100 experts from a variety of science, mathematics and engineering fields.

Fifty-one undergraduate scholarships and 51 graduate fellowships were awarded to students in the fields of physical, biological, social and behavioral sciences, engineering, mathematics and computer science. The scholarships cover tuition and a monthly stipend, and an internship opportunity

"It is an honor to be among the first recipients of this award and to represent MSU," Kamikawa said. "This award will help me to pursue my degree in bioengineering, specifically Biosystems Engineering, which is well suited for the advancement and protection of U.S. homeland security."

Kamikawa is a student in the colleges of Agriculture and Natural Resources and Engineering, a member of the MSU Honors College and a University Distinguished Scholarship recipient. She is the daughter of Ray and Virginia Kamikawa, and is a graduate of Iolani High School in Honolulu.

For more information on the Homeland Security Scholars and Fellows Program or for application information, visit the Web at www.orau.gov/dhsed

ASAE 1/4 Scale Competition

The Quarter-Scale Tractor Student Design Competition is one of the most intense and rewarding experiences that biosystems engineering students can experience at MSU. The national competition was established in 1998 by ASAE, The Society for Engineering in Agricultural, Food, and Biological Systems. The main judging categories include: a written design report; a team presentation; safety, serviceability, and manufacturability; and maneuverability. The highlight of the event is the overall performance competition where students perform a multi-stage tractor pull using a progressive sled.



2004 1/4 Scale Team



Maneuverability Test

Through involvement in the competition, students gain practical experience in the design of drive train systems, tractor performance, manufacturing processes, analysis of tractive forces, weight transfer, strength of materials, and ergonomics. It has given thousands of students hands-on, real-world engineering experience that will help them in upcoming courses and prepare them for future careers. The competition also provides students and opportunity to meet corporate sponsors such as AGCO Corp., Bridgestone/Firestone, Briggs & Stratton Corp., CLAAS, CNG, Caterpillar, Deere & Company, The Grasshopper Company, Kubota, and New Holland North America.

If you would like to help sponsor the MSU 1/4 Scale Team, send your donation (checks made payable to MSU) to:

Dr. Gary Van Ee
MSU 1/4 Scale Team Advisor
Biosystems & Agricultural Engineering
Michigan State University
226 Farrall Hall
East Lansing, MI 48824-1323



Practice Pull, Wheel Spinners and All



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The Department of Biosystems and Agricultural Engineering would like to thank all the generous people that have the foresight to support the Department and its various endowments and scholarships.

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James and Carol Robertson
Shelby and Ann Robertson
William and Kathy Roper
Kevin and Cynthia Rose
Gene and Ann Rose
Lauren and Sandra Rosier
Robert and Audrey Rossman
Charles Sanford
Stanley Schafer
James Schell
Brian Schulz
Larry and Donna Segerlind
Berton Sheppard
Earl Sherwood
Ober and Ruth Shuey
Rajinder and Anita Singh
Gerald and Peggy Skeltis
Robert Smith
Steven Smith
Marilyn and Russell Snow
William Splinter
David and Mary Sprott
Ajit and Barbara Srivastava
Paula Steiner
Bill Stout
Carrie Tengman
Muluken Tilahun
Gilbert and Catherine Tinsey
John and Rosalie True
Daniel Tyrell
Clyde and Suzanne Walker
Sally Wallace
Thomas Wharam
Robert and Ellen Wilkinson
Richard and Ruth Ann Wolthuis
Lee and Linda Wolf
Mulusew Yayehyirad
Cortland and Elizabeth Young Jr.
Michael Zimmer

NOMINATIONS REQUESTED FOR

DISTINGUISHED ALUMNI AWARD OUTSTANDING ALUMNI AWARD

The Distinguished Alumni Award will be bestowed upon an alumnus who has distinguished himself/herself as a leader through professional contributions, public service, and personal accomplishments. Contributions to the Biological/Agricultural Engineering profession shall be the primary selection criterion. As a general rule, only alumni who have *graduated ten or more years ago*, with an undergraduate and/or a graduate degree will be considered.

The Outstanding Alumni Award will be bestowed upon an alumnus who has accomplished outstanding professional growth and development and is recognized among his/her peers as a "rising star." As a general rule, alumni who received their undergraduate degree in the department *within the last ten years*, will be considered.

The deadline for submitting nominations is January 15. The awardee will be recognized during the BE Showcase held in April.

The nominator should submit a nomination letter outlining why the nominee would be a worthy recipient of the award and include the nominee's contact information. The credentials for nominees not chosen will be kept on file for consideration for two additional years, the nominator is welcome to update the file. Current MSU faculty members are not eligible. Send nomination letters via U.S. mail, fax 517-432-2892 or e-mail srivasta@msu.edu:

Department Biosystems and Agricultural Engineering
Michigan State University
Attn: Alumni Awards Committee
215 Farrall Hall
East Lansing, MI 48824-1323

Your News is Good News....

Please help us keep up with your accomplishments by returning this information request form.

Name: _____ Maiden: _____

Home Address: _____

City: _____ State: _____ Zip: _____

Home Telephone: _____ Business: _____

Business Address: _____

_____ E-mail: _____

Business Title: _____

Indicate your degree(s) earned from MSU: _____

**Notes about you (recent promotions, professional honors, career activities, civic achievements, family news).
We will publish this in our next issue:**

Classmate Lost and Found Have you lost track of an old college friend? Maybe we can help. Tell us who you are looking for and let us know how they can contact you.

I'm looking for: _____

Name

Class of

Major

Message

Department of Agricultural Engineering

HOW TO FIND US:

By mail:

Dr. Ajit K. Srivastava, Chairperson
Department of Agricultural Engineering
Michigan State University
215 Farrall Hall
East Lansing, MI 48824-1323

***BE Newsletter
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In 2005, Michigan State University celebrates the 150th anniversary of its founding as the pioneer land grant institution.

**MICHIGAN STATE
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BIOSYSTEMS
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215 Farrall Hall
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MSU is an affirmative-action, equal-opportunity institution.