First manufacturing engineering grad off to the assembly line

Murphy says that although her manufacturing engineering degree made it easy to find a job, the program is challenging. The program requires students to maintain a minimum 3.0 GPA at the end of their fourth year in order to be admitted to the graduate school. Additionally, students in the program need to complete three co-op assignments, where they work as full-time employees in an industrial setting.

"It is more intensive than your typical engineering program, because you're adding on a degree," Murphy explains. "A lot of people don't realize that, they think they're just getting the same type of engineering knowledge." She adds, "People have to go in knowing that it's not going to be a cake walk. They have to be ready to work."

To fulfill her manufacturing program requirements, Murphy co-oped at Steelcase Corporation in Grand Rapids. Two of her assignments were engineering-based, while the other was focused on business.

Murphy admits that a business co-op is a bit unusual for an engineering student, but she added that it allowed her to apply the skills she was learning in her business classes. "I did a study for Steelcase on how much it costs to add complexity to a product. I didn't do any manufacturing—no engineering, no nothing—but I got the business side of the whole thing on costs and all that."

When asked how the business side of things has affected her, Murphy says that she is not the stereotypical engineer who doesn't realize that there is a world outside of engineering and design.

"While I'm on the job, I may want to incorporate a new part, but I can actually see that it will impact several different areas of the company—not just mine. And that added cost is going to be passed on to the consumer and it's going to affect profit, sales, and distribution." So, she continues, "Instead of being the engineer that says, I want it done this way, and there you go, I actually stop and think about the other side of things."

"It was an adjustment learning to think like both an engineer and business person," says Murphy. "Engineers think in terms of logical and concrete. In business, the more creative you are, the more likely you are going to succeed."

Murphy asserts that she was prepared to think in these two different dimensions, engineering and business, during her co-op experiences. "Co-oping is amazing," says Murphy. "Where else can you actually do hands-on what you learned in a textbook the semester before?"

Besides, Murphy's co-op experience helped her land a lucrative full-time job as an associate manufacturing engineer with Steelcase Corporation. "It's my dream job," she exclaims. "I won't be doing a lot of design, but I'll be actually utilizing the manufacturing knowledge that I got out of this program."

In addition to the opportunity to co-op and earn a master's degree, Murphy says that the manufacturing program offers even more. The program is fairly small and still developing, so there are a lot of ways to get involved, she states.

"I would sell this program to anybody," Murphy states in her own exuberant way. "It's what I call the melting pot major, because you get a little of everything, because you have to know a little bit about every different thing."

"Now, I get to apply all those things to my new job, and I didn't have to specifically focus my energies on one subject," Murphy continues. "I think I got a broader education out of it," she finishes breathlessly.
1999 Withrow Awards Luncheon

Each year, students and faculty nominate individuals who demonstrate excellence in their day-to-day work, with the winners honored at the annual engineering awards luncheon.

This year the faculty selected by the students to receive the 1999 Withrow Teaching Excellence Award are: Larry Segerlind, professor of agricultural engineering; R. Mark Worden, chemical engineering professor; Mackenzie Davis, associate professor of civil and environmental engineering; Donald Weinshank, professor of computer science and engineering; Mark Urban-Lurain, computer science and engineering specialist; Roland Zapp, associate professor of electrical and computer engineering; Melissa Crimp, assistant professor of material science and engineering; and Indrek Wichman, associate professor of mechanical engineering.

The 1999 Withrow Distinguished Scholar Award went to two faculty members who have a reputation for innovation and dedication to their research. Krishnamurthy Jayaraman, professor of chemical engineering, and Sridhar Mahadevan, assistant professor of computer science and engineering, were both recognized.

The Gloria Stragier Award for Dedicated and Creative Service, was given to Denise Barnstead, executive secretary for the Department of Undergraduate Studies. Barnstead has set herself apart as a dedicated and integral part of the support staff within the college.

All the award recipients received a plaque and their names were added to a commemorative wall hanging in the Engineering Building.

Engineering student-athletes raise the bar in academic excellence

MSU's student-athletes are not only competitive on the playing field, but in the classroom as well. Each year, MSU honors its student-athletes at the Spartan Academic Excellence Gala.

This year, three students from the College of Engineering earned the highest individual GPA on their teams. Thomas Hartley topped the varsity baseball team with his high marks in engineering mechanics while from electrical engineering, Steven Schell bested his cross-country teammates academically. Sarah Salenski, civil engineering undergraduate, also surpassed her fellow swimmers in academic studies. Each athlete who had the highest team GPA received a medallion at the awards celebration.

Additional engineering students and athletes were also recognized: Andrew Bogle, engineering (hockey); Albaugh Cyndyann, civil engineering (field hockey); Rustyn Dolyny, engineering (hockey); Nate Dotson, mechanical engineering (gymnastics); Kira Glover, chemical engineering (swimming); Garrett Gould, mechanical engineering (football); Molly Hugan, mechanical engineering (softball); Gary Kraus, mechanical engineering (golf); Angela Lound, chemical engineering (crew); Becca McMullen, bio-materials engineering (crew); Kari Prochazka, material science and mechanics (golf); Angela Rienas, chemical engineering (crew); Chris Weedon, mechanical engineering (gymnastics); Heather Wing, mechanical engineering (swimming).

ECE senior wins ‘Engineer of the Year’

Stacy Lee Henry, electrical engineering senior, has been selected as the 1999 Michigan Society of Professional Engineers (MSPE) "Student Engineer of the Year."

Henry was first nominated for the Grand Valley MSPE regional award by William Saul, MSU's National Society of Professional Engineers (NSPE) adviser. Saul states that since Henry became the president of the MSU chapter, the organization has been revamped and greatly improved due to Henry's efforts. Saul adds that this year, the number of members in NSPE has doubled and attendance at meetings has increased eightfold.

Henry was automatically put into the running for the statewide "Student Engineer of the Year" competition after winning the regional award. Henry will be recognized at the annual MSPE convention.

Says Henry, "I never thought anything like this would happen, especially to me. I have worked hard over the past year to turn our organization around, but this just humbles me. I can't thank MSPE enough for the honor."

Henry's contributions to the organization will have a long-term impact. He has developed an officer-training program for new NSPE leaders and has revised the organization's Web site. In addition, graduating seniors were able to take the Order of the Engineer's professional and ethical pledge through NSPE.
The MSU Environmental Engineering Student Society (EESS) sent two student teams to the Waste-management Education and Research Consortium (WERC) design competition in Las Cruces, New Mexico. This is the only national competition for environmental engineering students, who are evaluated on how well they solve real-life environmental problems.

One MSU team competed in the landfill design event and presented an innovative landfill cap design that can be used in arid regions of the United States. The other team created a strategy for the remediation of a site contaminated by high explosives such as TNT. Members of the landfill design team were: Subhash Kari, Kyle Paulson, Heather Marek, Phil Strunk, April Philipp, Matt Darr, and Bernie Walraven. The remediation design team included Ahsan Ansari, Anhish Chavan, Ana Georgieva, Eric Gray, Gretchen Hellmann, Jolene Johnson, Anthony Pascal, Renee Pionk, and Michael Stanbrough.

The remediation team received the best poster award during the competition.

At the regional steel bridge-building contest, the MSU steel bridge team captured a solid second place. The MSU team is now qualified to move on to the national bridge-building competition, which takes place in Anchorage, Alaska.

The contest challenges students to design and fabricate a steel bridge using pieces that are no longer than 66" and no heavier than 40 pounds. The student teams are timed and judged on how quickly their bridge is assembled. The completed bridge must span seventeen feet and support the weight of a compact car.

The MSU bridge weighed a total of 82 pounds and sagged only 0.28" under the 2500-pound load. The team was able to construct the bridge in less than five minutes over an imaginary river boundary. Frank Hatfield, team adviser, projects that both the bridge aesthetics and construction time will be improved before the national competition occurs over Memorial Day weekend.

The MSU steel bridge team is: Adrienne Evert, Jerry Feighner, Dirk Heckman, Doug Irrer, Chris Johnson, Heather Milne, Long Tran, Jermaine Vaughn, and Jonathan Woodard.

The MSU concrete canoe team cruised past their opponents to a first-place overall finish at the American Society of Civil Engineers North Central Region competition in Akron, Ohio. MSU students vied against teams from seven different universities in this daylong canoe challenge. The contest involved both academic and racing events, with the academic portion of the competition worth 60 percent of the team's total score, and the races counting 40 percent.

In the academic area, the MSU team received first for its engineering report, which described the design, construction, and cost of the concrete canoe. In addition, the team took second in the canoe appearance, third in the display, and fifth in the oral presentation events.

In the racing portion of the contest, the team was unsure of its standing in the academic events. Co-captain Bob Verschaeve said, "We were nervous, but knew that we were strong in the paddling events." The team had to complete five back-to-back races: 600-meter distance men's pair race, 600-meter distance women's pair race, two sprint races for men's and women's pairs, and a co-ed 200-meter sprint with four rowers. MSU was undefeated in all of the heats.

Verschaeve attributes the team's success to the hard work of all the team members. "Everyone—the committee chairs, the designers, the builders, the paddlers...everyone—put in a 100 percent effort," he says.

The team will go onto the national competition held in June in Melbourne, Florida.

The concrete canoe team includes: Kevin Dubnicki, Kevin Endres, Jeremy Horton, John Janiszewski, Jolene Johnson, Dean Kanitz, Troy Kelts, Alison Leach, Heather Milne, Jesus Plasencia, Stephanie Smith, Bob Verschaeve, Ernie West, and Yolanda Wilson.

The MSU steel bridge team is funded by the Associated General Contractors of Michigan, Great Lakes Fabricators and Erectors, and several steel bridge-building team alumni.

**Civil and Environmental Engineering**

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**Electrical and Computer Engineering**

Ning Xi, assistant professor of electrical and computer engineering, is the first recipient of the IEEE Robotics and Automation Society’s "Early Academic Career Award." This award honors IEEE members who have made a significant impact on robotics or automation during the first seven years of their academic career after completing a Ph.D. program.

Xi will receive a plaque and cash prize for this award at the IEEE International Conference banquet in Detroit.

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Grants Received

Foss, J. (ME)  
IPA Assignment for Dr. John F. Foss  
NSF  
09/15/98-09/14/99 ........................................... $2,938

Haddow, A. (ME)  
General Research  
Ford Motor Company  
Open .................................................. $20,000

Kempel, L. (CSE)  
Advanced Integral Equation Computer Program  
Mission Research Corporation  
03/24/99-11/03/00 ........................................... $15,000

Pramanik, S. (CP S)  
AIMS: Arapahoe Information Management System  
Ohio State University Research Foundation  
02/01/99-01/31/00 .......................................... $59,939

Shih, T. (ME)  
Development and Implementation of a Global Bled Boundary Condition  
NASA  
01/12/99-12/31/99 ........................................... $189,150

Wiggert, D. (CEE)  
Study of Dynamic Response in Ductwork Serving Laboratory VAV Exhaust Systems  
ASHRAE  
04/01/99-03/31/01 ........................................... $96,320

Proposals Submitted

Averill, R. (MSM)  
Penalty-based Finite Element Interface  
Technology for Analysis of Homogenous and Composite Structures  
NASA ........................................................ $54,655

Benard, A. (ME)/Wichman, I. (ME)  
Numerical and Experimental Investigation of the Burning of Polymers and their Composites  
NIST ....................................................... $221,768

Benard, A. (ME)/Diaz, A. (ME)  
Design Oriented Simulation of Mold-Filling Processes  
NSF-GOALI .................................................. $252,587

Benard, A. (ME)  
Modeling Transport Phenomena and Microstructure Development in Semicrystalline Polymers and Composites  
NSF ........................................................ $179,421

Cheng, B. (CSE)/Stirewallt, K. (CSE)  
Object-oriented Development and Analysis of Embedded Systems  
NSF ........................................................ $365,000

Cheng, B. (CSE)  
Integrating Informal and Formal Specification Techniques for Telecommunication Systems  
Motorola ...................................................... $28,022

Chung, M. (CSE)/Kwon, P. (MSM)  
A Formal Approach to Integration of Design and Manufacturing  
NSF-DMII ................................................... $378,610

Davis, M. (CEE)  
Economic Analysis of Engineering Control Intervention for Drywall Sanding Construction Activities  
CDC/NIOSH ................................................ $285,000

Deller, J. (ECE)  
An Adaptive Alerting System for Persons with Hearing Disabilities  
Silent Call Corporation .................................. $297,886

Foss, J. (ME)  
Performance Improvements & Acoustic Emission Reduction in Automotive Fans  
Chrysler ...................................................... $150,000

Haddow, A. (ME)  
New Metrics for Characterizing Impulsive Events: Automotive Applications  
NSF-GOALI .................................................. $41,644

Jain, A. (CSE)  
Image Tiling for High Resolution Solid Surface Profiling  
NASA Lewis ................................................ $34,999

Kempel, L. (CSE)/Nyquist, D. (ECE)/Crimp, M.J. (MSM)  
Wide Bandwidth Wireless Communications Antennas Exploiting Functionally Gradient Materials  
NSF ........................................................ $463,305

Kim, B. (ECE)  
Test of Integrated Passive Components and Interconnects in MCM Substrates  
NSF ........................................................ $20,000

Kim, B. (ECE)/Aslam, D. (ECE)/Kwon, P. (MSM)  
Smart Packages for High-temperature MEMS and Micro-powerplants  
DARPA ...................................................... $1,720,359

Kim, B. (ECE)  
Design of Electronic System For Advanced Munitions  
Army Research Lab ........................................ $15,000

Kwon, P. (MSM)  
A New Scientific Methodology to Understand and Predict Tool Wear  
NSF-DMII ................................................... $283,871

Lloyd, J. (ME)/Radcliffe, C. (ME)  
Micro-Electro Thermal Systems: Controllable Fluid Heat Transfer Properties  
NSF ........................................................ $397,910

McGrath, J. (ME)/Teidje, J. (Microbiology)  
Strategies of Long-Term Procyote Survival in Ancient Permafrost Solis  
NSF ........................................................ $521,337

Miller, D. (CHE)/Jackson (Chemistry)  
Separation of Glycols from Aqueous Solutions by Reactive Distillation  
NSF ........................................................ $29,890

Miller, Dennis (CHE)/Jackson (Chemistry)  
Novel Catalysts and Processes for Upgrading of Glucose-derived feedstocks to Value-added Chemical Products  
NSF ........................................................ $262,719

Nagib, A. (ME)  
Wall Pressure Array Measurement for Characterization of the Separated Flow Regions for Flow Control Applications  
NSF ........................................................ $22,000

Nagib, A. (ME)  
A Doppler Sensor Array for High-Resolution Measurements of the Wave Number-Frequency & Spectrum of the Turbulent Wall Pressure at High Reynolds Numbers  
ONR ...................................................... $276,297

Pourboghrat, F. (ME)/Benard, A. (ME)  
Hydroforming of Composite Materials  
NSF-GOALI ................................................. $252,015

Rothwell, Edward (ECE)  
Self-structuring Antennas for Wireless Networks  
NSF ........................................................ $594,436

Schock, H. (ME)/Lee, K. (ARES)  
Torque Converter Impeller to Turbine Blade Trap Flow Study using Laser Doppler Velocimetry  
Chrysler ...................................................... $107,215

Schock, H. (ME)/Lee, K. (ARES)  
3D In-cylinder Flow Characterization of a 2.5L 4-V Direct Injection SI Engine Using Diagnostic Techniques  
Chrysler ...................................................... $204,226

Schock, H. (ME)/Lee, K. (ARES)  
Fuel-Air Mixing Effects on Combustion in Gasoline Direct Injections (DISI) Engines  
Chrysler ...................................................... $66,951

Soroushian, P. (CEE)  
A New Class of Actuator Materials for Rapid and Precise Application of Large Strokes at High Forces  
DPD, Inc ................................................... $30,000

Taylor, W. (CEE)  
Effect on Crashes Due to Construction of Directional Crossovers  
MDOT- (Center Project) .................................. $15,379

Tsai, H. (MSM)  
Mechanical Properties and Microstructure of Shape Memory Alloy Embedded Composites  
NSF ........................................................ $246,990

Worden, M. (CHE)  
Bacterial Growth, Transport, and Multi-Species Interaction in the Formation of Biobarriers  
DOE ......................................................... $301,692

Worden, M. (CHE)/Briedis, D. (CHE)  
REU Supplement: Multidisciplinary Bioprocessing Curriculum  
NSF ......................................................... $37,500

Zhuang, M. (ME)  
Air Induction/Throttle Body Acoustical Modeling  
Chrysler ...................................................... $48,819

Events Readers:

Please send news and information for the newsletter to Jill Krueger at Events@egr.msu.edu or via snail mail to room 3412 Engineering Building, East Lansing, MI 48824-1226.