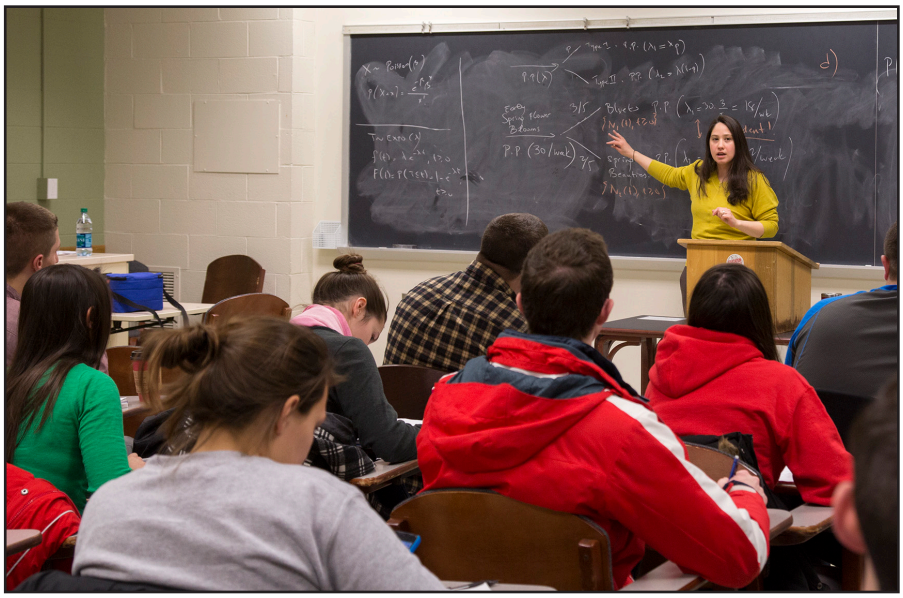
Buck ISE
News from The Department of Integrated Systems Engineering at The Ohio State University
Summer 2015
www.ise.osu.edu

Supply Chain and Logistics Track Integrates Business and Marketing Coursework Giving ISE Students a Career Edge

Future graduates of Integrated Systems Engineering will be ready to go to work armed with knowledge to manage supply chain and logistics functions – skills that previously were acquired after many years working in the industry. In an effort to provide employers with desired skills in an increasingly competitive environment, The Ohio State University ISE Department is offering a supply chain management/logistics specialization to undergraduates.



ISE Associate Professor Güzin Bayraksan instructs her class on data-driven methods. *Photo by Cedric Sze/ISE*

"Complementing their broader background as industrial engineers, the supply chain/logistics track will provide students with an exceptional background for the design and management of supply chains," says Department Chair Dr. Phil Smith. "This includes quantitative modeling of supply chain systems, as well as the use of such modeling to support system design and decision making. Such skills are in great demand for career paths in areas such as healthcare, energy systems, financial management, insurance, manufacturing and production systems, military planning, shipping and distribution, and transportation."

To complete the supply chain and logistics track, in addition to core ISE classes, students also must take a number of marketing and logistics business courses, including logistics management, supply chain management, logistics analytics, lean logistics and sustainable supply chains.

ISE student Matt Alic has been accepted into the program and says he applied because he believes "it will give [him] a leg up on competition in similar fields."

"I will be taking more business classes than other students where I can learn and implement new supply chain methods," Alic says. "I also believe it will help me in terms of project management. I have heard that supply chain management is becoming more and more desirable in industry today and I thought this track would give me a great advantage when applying to companies."

The Department also is in the process of creating a master's level track for supply chain management and logistics. As a result of the news, one OSU alumnus was prompted to establish The Supply Chain Management Endowed Graduate Scholarship Fund to provide scholarships to graduate students in the Department's master's of science degree program who are specializing in supply chain management. The donor, an ISE graduate who wishes to remain anonymous, pledged a total of $100,000, which will be matched by the University through the Ohio Scholarship Challenge, since the fund reached its total before Dec. 31, 2018.

The new track complements the recent addition of another area of specialization for the department: data analytics and data-driven optimization, which also has drawn both praise and interest from students, industry and alumni. Other specialization tracks available to students are: human systems integration & design, management systems & operations research and manufacturing engineering.

From the Chair

Serving Students and Society

Part of the magic of our ISE program is that it provides our students with technical, management and leadership skills that prepare them to pursue opportunities across a wide range of career paths.

Our strategy has been to design a semester's curriculum that supports this diversity, ensuring that all students have a strong foundation in engineering as well as in industrial engineering, but also giving them the chance to develop depth in one of five alternative interdisciplinary tracks: data analytics and data-driven optimization; human systems integration and design; management systems and operations research; manufacturing engineering; and supply chain management.

Across all of these focus areas, we also have been working hard to help our students understand that technical expertise alone is not sufficient. Industrial engineers need excellent communication, management and leadership skills to make things happen. Our students develop some of these skills through course-based projects. However, their roles as leaders in student organizations such as the student chapters of the Institute of Industrial Engineers, the National Society of Black Engineers, the Society of Hispanic Professional Engineers and the Society of Women Engineers play an important part in developing these skills, as does participation in international summer projects and internships.

To make these educational experiences possible for our students, we have been expanding and enhancing our faculty. As with the rest of the world, faculty hiring has become more competitive, both in terms of university funding and in terms of competition to hire the best candidates.

We always begin interviews by letting candidates meet our students. We believe they are our best ambassadors to highlight the energy, enthusiasm and excellence that characterizes our program. Then we show the opportunities that they will have at OSU defining the future in key research areas.

The challenge is putting this all together into an effective educational "system." This requires us to recruit and invest in the best people:

- Top faculty who are committed to excellence in both teaching and research, and who are prepared to define the future,
- Top graduate students to support faculty and become future leaders of ISE in academics and industry, and
- Top undergraduates who will be the heart of the profession.

And it requires us to create an environment at OSU that leads all to work together to define and become the future of ISE.

Redesign Offers Modern, Accessible Space

For the first time since Baker Systems was built in 1968, the ISE Department offices have a new look.

The three-month renovation was completed last fall by M+A Architects and Premier General Construction. "This project was all about transparency," says Carrie Boyd, M+A senior interior designer and an OSU graduate. "As a first impression to the Department, it was important to create a space that was inviting, attractive and efficient. This Department's collaborative nature allowed us to create a design that was open and flexible. The glass fronts to the offices and the central lounge/waiting area, makes the space feel larger and allows for natural daylight to penetrate the space."

ISE Office Manager Jen Morris says the new office space provides a better flow. "Visitors have a place to sit and relax while they wait for an appointment, and we can show department information and recent event photos on the display in the waiting area," says Morris.

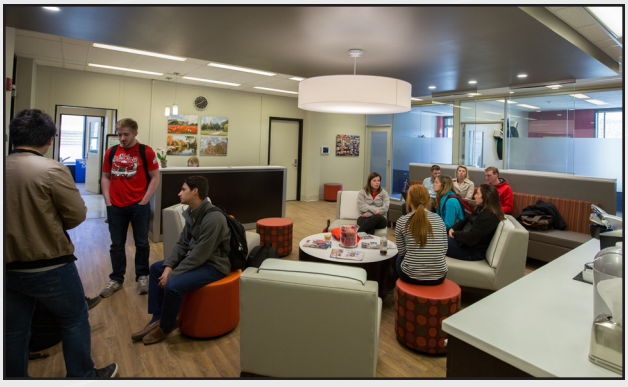


Photo: Cedric Sze/ISE

The redesigned office suite offers space for students to gather in the waiting area that serves as the Department's "living room."

ISE Research Has Potential to Transform Auto Manufacturing, Save Energy

Lighter vehicles equal better fuel economy. The challenge is: How to reduce the weight of motor vehicles without sacrificing durability and occupant safety? Enter ISE Associate Professor Jerry Brevick, who is working with Professor Alan Luo as principal investigators on a research project with General Motors and Meridian Die Casting that is funded by the Department of Energy.

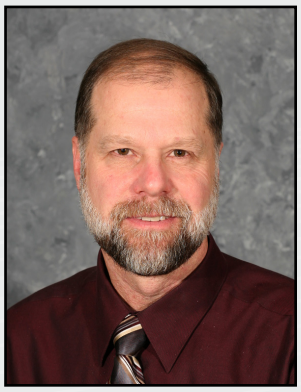
"The original goal was to make car doors lighter," Brevick says. The doors currently are made of steel, largely because of safety, he says. "The idea is to make them out of magnesium. But the problem is, it is not as ductile and doesn't absorb as much energy in a crash."

Brevick says sheet magnesium is more difficult to form through conventional stamping methods, so he and his fellow researchers have been experimenting with liquid magnesium, which they then cast into the proper shape. To address safety issues, a sideguard door beam is included in the door design to absorb impact in the event of a crash. Meridian Die Casting provides the expertise to design the full-sized magnesium door casting.

Traditionally, car doors are constructed of several steel parts welded together. "Making one-piece magnesium doors requires less energy," Brevick says, which is in line with DOE's interest in saving energy. In addition, the process is less expensive to make doors, because fewer parts and less assembly is required.

The research is in its second year of the three-year project. Brevick says the research team is utilizing a die-casting machine, and has the ability to melt and cast the magnesium at a research lab on West Campus. "We are really the only academic institution that has a die-casting machine and melting capability for both aluminum and magnesium," Brevick says. "Our students are more competitive in the job market, if they already have this knowledge."

The project came to OSU through Luo, professor of Materials Science Engineering and director of the Light Metals and Manufacturing Research Laboratory at Ohio State. Luo was a GM technical fellow at the GM Global Research and Development Center in Michigan prior to joining the College of Engineering.



Jerry Brevick

The faculty members have brought in graduate and undergraduate students to assist with design, modeling and fabricating. Brevick says the research on automobiles could impact the way in which some aerospace components are manufactured as well.

Brevick also is working on other research projects, including evaluating manufacturers' lubricants for die-casting with a lubricant testing apparatus located on West Campus.

In addition to his research work, Brevick has played a key role in advancing the Department of Integrated Systems Engineering's undergraduate curriculum manufacturing track. Working with Josh Hassenzahl, manufacturing laboratory supervisor, they developed ISE 3500, a machining processes course. Brevick teaches the lecture, while Hassenzahl and Research Engineer Bill Tullos handle the lab portion. Brevick says the course is in response to industry feedback. "ISE students have a much richer educational experience when they spend more time in the manufacturing lab, and are better process designers and problem-solvers as a result," he says.

The next step is the development of an ISE automation course, which would be offered for the first time spring semester 2016. The objective of this new course is to give ISE students experiences in designing automated operations, including manufacturing processes, assembly operations and robotic applications.

Oh Scholarship Repays Kindness

As a graduate student, Keytack Oh was lucky enough to have a benefactor by the name of Mariel Thorp who sponsored his education. It was a kindness he never forgot. After earning his master's degree from Oklahoma State University and his PhD in ISE from The Ohio State University, Dr. Oh decided to pay it forward. He and his wife Youngsim Lee Oh began by establishing the Keytack Henry Oh and Mariel Thorp Scholarship Fund at the University of Toledo, where he was teaching industrial engineering at the time.

Youngsim and Keytack Oh celebrate his Hwan-gab in 1998 aboard the Arawanna Belle in Toledo, Ohio. Hwan-gab is the celebration of the 60th birthday and is the biggest birthday celebration in the Korean culture.

Photo: Courtesy of Youngsim Oh

"We were all grateful to her for what she did," says Youngsim Oh, who earned her master's in education from OSU. "He also wanted to have a scholarship to help a Korean student who would be in the same situation as he was."

Dr. Oh did not have a chance to establish a second scholarship; he passed away in December 2003. "I wanted to honor his wish," says Mrs. Oh.

On March 16, 2015, which would have been Dr. Oh's 77th birthday, Mrs. Oh established the Keytack Henry and Youngsim Lee Oh Engineering Scholarship Fund, with a commitment for $100,000. The fund is eligible for the Ohio Scholarship Challenge, which provides matching annual distribution amounts from the university if the commitment is reached by March 16, 2020.

Molock Engaging Alumni and Industry Partners in ISE Functions

Since arriving on the OSU campus a little over a year ago, Julie Sills Molock has been engaged with businesses and alumni, encouraging them to get involved with the Integrated Systems Engineering Department.

Julie Sills Molock

As development director for the Department, Molock knows the importance of their involvement. On a daily basis, she sees first-hand examples of how mentoring has helped students obtain invaluable learning opportunities, how major gifts enable updated labs providing graduates with the type of cutting-edge experiences sought by employers, and how scholarships assist students in achieving their dream of earning a degree from The Ohio State University.

Molock, who has served similar roles at Morehouse College in Atlanta and the University of Dayton, has found a welcoming environment at Ohio State, and in her travels on behalf of the university.

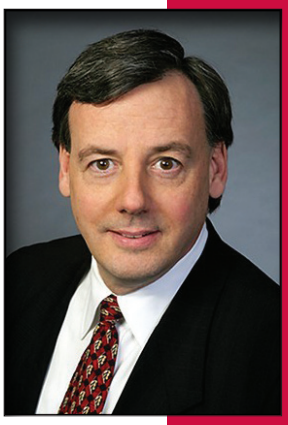
"Everyone has been wonderful," she says. "The faculty are amazing, and I love working with the students."

In addition to making connections in Central Ohio, Molock regularly visits Florida, California, Texas and North Carolina to meet with alumni and help them stay connected to their Buckeye roots. She encourages them to share their stories as part of the "But for Ohio State ..." campaign.

Molock says she is always interested in hearing from alumni and encourages our graduates to contact her at sills-molock.1@osu.edu or (614) 292-0096, if you would like to arrange a visit.

She is a graduate of Spelman College with a bachelor of arts degree in communications, and has extensive experience working for major corporations, including Dupont and Bank of America. Molock also has served as the manager of Economic Development for the governor of Delaware.

Time, Talent and Treasure



We are fortunate to live in a society that rewards a good education, coupled with hard work and a well-executed plan, with financial success. I would first like to thank those of you who have joined Sharon and me in giving back to Ohio State. Your gifts of "treasure" are greatly appreciated by the faculty and students of the ISE Department.

At our last Alumni Advisory Board meeting, Dr. Phil Smith, chair of the ISE Department, updated the Board on the excellent results the Department has achieved in attracting a world-class faculty. This preeminent faculty conducts unrivaled research, utilizing highly qualified graduate students. The ISE Department lacks adequate funding to provide the targeted level of graduate student support required for these outstanding research efforts. To bring these top-of-their-field graduate students to OSU requires $35,000 a year in financial support. If you haven't already done so, please consider adding the OSU ISE Department to your targeted donor list.

There are other ways you can give back to Ohio State. The ISE Department is looking for industry partners and individuals who are willing to sponsor an ISE project, offer internships to students, or who are willing to share their expertise with students in a classroom setting or in an advisory-panel role. If you are interested in learning more about sharing your time and talent with the ISE Department, please contact Dr. Smith at (614) 292-4120, or smith.131@osu.edu.

Time, Talent and Treasure: I'm sure we've all heard these familiar words regarding giving back or paying forward. There are 5,100 alumni from the ISE Department (representing 9 percent of total College of Engineering alumni). Over the past three years, 1.5 percent of overall gifts to the College of Engineering came from ISE alumni.

Won't you join us in supporting this great department – our department – ***Integrated Systems Engineering at The Ohio State University!***

Go BuckISE!

Chuck Elgin (BS, ISE '78)
Chair, ISE Alumni Advisory Board

What does Ohio State mean to you?

I would like to give $_____to the Department of Integrated Systems Engineering

❏ Use my gift where it is needed most.

❏ I would like to designate my gift to be used for: _____

❏ My employer will match my gift. I have enclosed my employer's matching gift form.

Name: _____ Degree/Year: _____

Address:_____ City:_____ State:_____ Zip:_____

Daytime phone: _____ Evening phone: _____ E-mail address:_____

Employer: _____ Title: _____

I have enclosed a check made payable to ISE-OSU. ❏ Please charge my gift to my credit card.

❏ Visa ❏ MasterCard Card #:_____ Expiration Date:_____

Signature: _____

Mail to ISE, 224 Baker Systems, 1971 Neil Ave., Columbus, OH, 43210-1275, Attn.: Julie Sills Molock

If you would like more information on ISE, or would like to discuss other opportunities to assist the Department, please contact Director of Development Julie Sills Molock, at sills-molock.1@osu.edu or 614-292-0096.

Buckeyes' Leader Urban Meyer Shares Keys to Success at IIE Leadership Summit

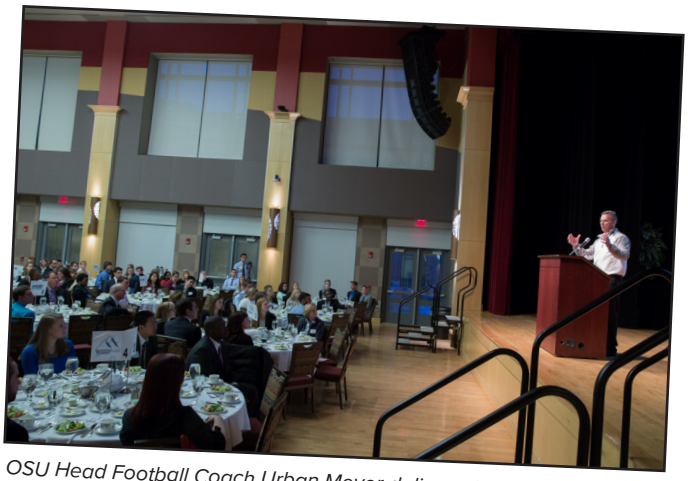
This year's Leadership Summit was highlighted by a keynote speech from one of Ohio State's favorite leaders – Head Football Coach Urban Meyer – who led his team to victory in the 2015 NCAA Championship.

The Summit, held Jan. 31 at the Ohio Union, was organized by the OSU student chapter of the Institute of Industrial Engineers. Leadership Summit Coordinator Corey Turner says the students used one of their own connections to recruit Meyer as the keynote speaker: Joe Burger, an ISE student and linebacker for the Buckeyes.

Billed as an all-day leadership immersion program, the summit allows students to learn from leaders as well as interact with business and industry professionals. Students are able to meet with company representatives to discuss the possibilities of full-time positions, as well as co-op and internship opportunities.

Attended by more than 300 students, the third annual event was deemed a rousing success. Sixteen companies helped sponsor the summit, including Gold Sponsors Eaton and AMEND, and Silver Sponsors Abbott, Accenture, Big Lots, Boeing, General Mills, Hyland, ITW, Improving Enterprises, Liberty Mutual Insurance, Lincoln Electric, PCC, Procter & Gamble, Rockwell Automation and Verizon.

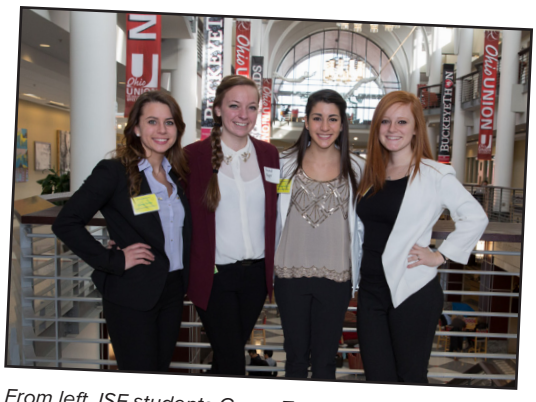
Members of the student planning committee are: Corey Turner, Collin Callahan, Matt Alic, Brett Blackwell, Melissa Brooks, Julia Burrowbridge, Lex Clark, Alyssa Crock, Megan Cubberley, Karim Derawan, Nick Goodge, Georgia Lindner, McCay Lloyd, Rachel Mager, Lauren Malone, Emily Miller, Macy Monnin, Alisa Noll, Kelly Parriman, Sarah Schaefer, Vanessa Serrano, Gunnar Smyth, Nick Tedesco and Nick Woo.



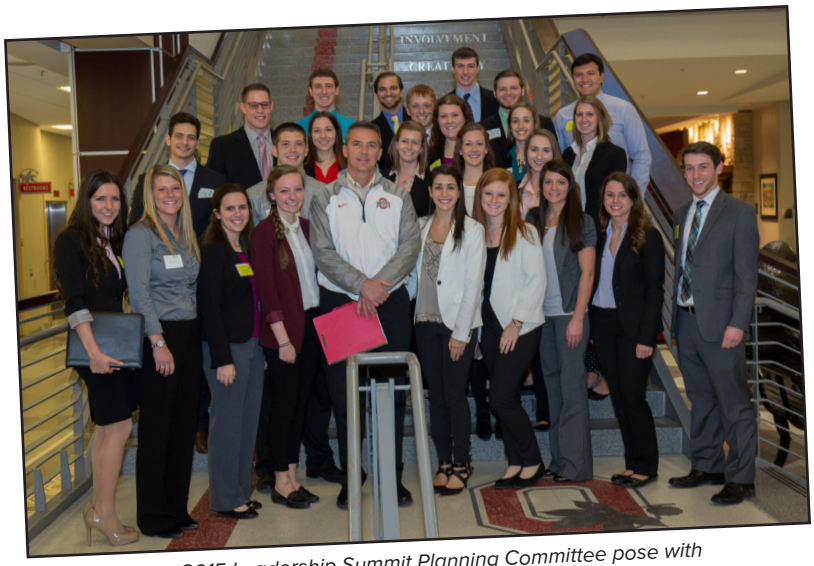
OSU Head Football Coach Urban Meyer delivers the message about the importance of leadership on and off the field.

Photos by Cedric Sze/ISE

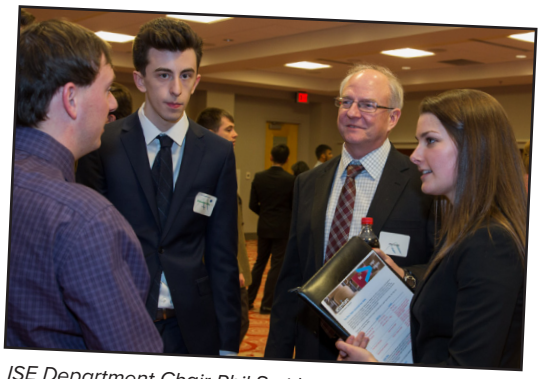
Chris Rathsack, director of strategy & analysis for Capital One, gives a breakout session covering case interviews, including how to prepare for them and factors considered in the assessment process.



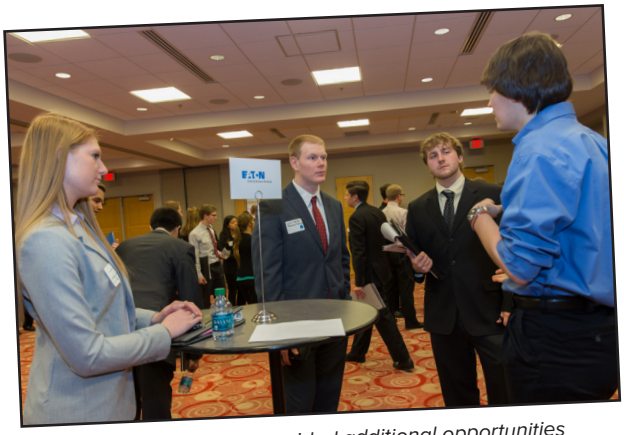
From left, ISE students Corey Turner (coordinator), Rachel Mager (committee member), Vanessa Serrano (head of marketing) and Lex Clark (head of speakers) helped plan the 2015 Leadership Summit.



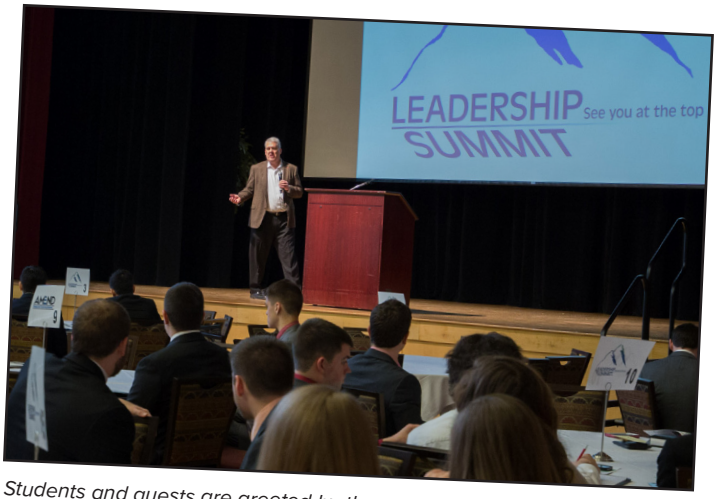
Members of the 2015 Leadership Summit Planning Committee pose with OSU Football Coach Urban Meyer following his keynote address.



ISE Department Chair Phil Smith, second from right, talks with students about their experiences at the Summit.

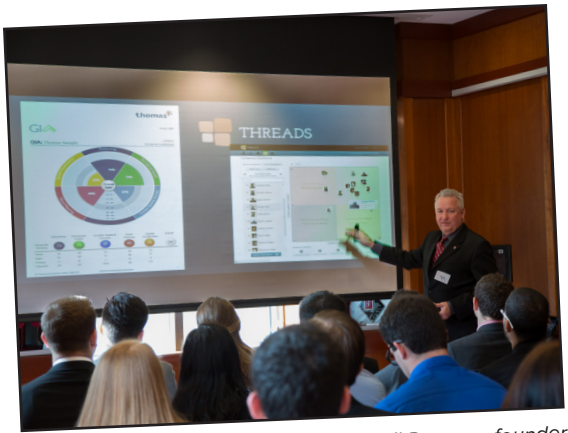


The Networking Session provided additional opportunities for students to interact with business leaders. In this photo, students stop by to network with representatives of Gold Sponsor Eaton.



Students and guests are greeted by the opening speaker, Charlie Covert, vice president of customer solutions for UPS, who graduated from OSU with a bachelor's degree in ISE.

The company-sponsored dinner at the Leadership Summit provided students with a chance to network with business representatives. Here, students joined with leaders from Gold Sponsor AMEND.



OSU Chemical Engineering graduate Bill Dawson, founder and CEO of NexTech Materials, delivers a breakout session covering Working for or Founding a Start-Up

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NSBE Conference Leaves Lasting Impression

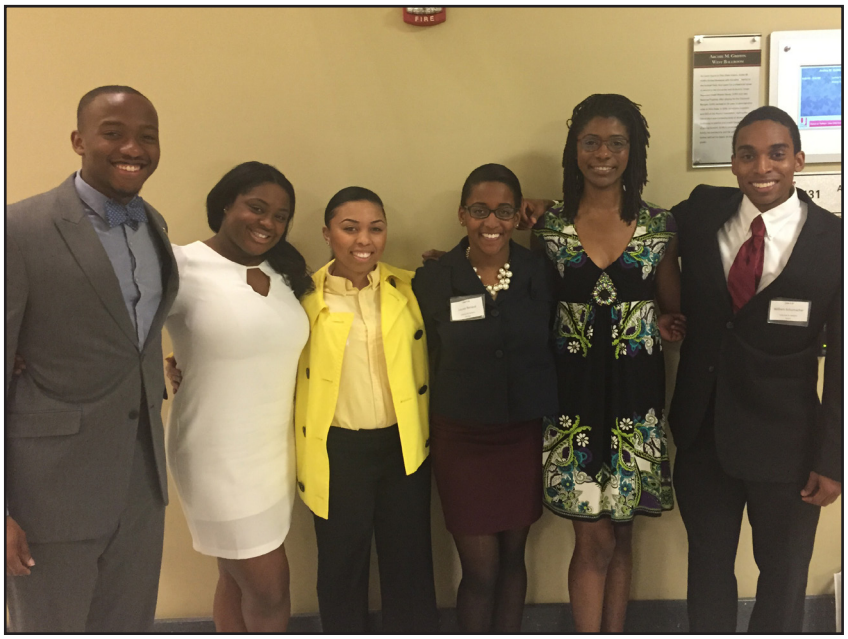

Photo: Courtesy of Taylor Luke

Members of the OSU student chapter of the National Society of Black Engineers, include students, pictured left to right, Jeremiah Ross, Natasha Yeboah, Rakia Levesque, Lauren Renaud, Taylor Luke and William Schumacher. Ross, Yeboah, Renaud and Luke attended the NSBE National Convention in Anaheim, California, in March. Luke, a spring quarter ISE graduate, has attended the conference the past five years and says each time she has learned something new. "Attending NSBE conference has and will continue to prepare us for our careers," she says. "The NSBE network helps provide us mentorship, professional development and lasting friendships. In addition to the networking, the professional development workshops help us to uphold a professional image and learn from people in the engineering industry. Academically, we are challenged through the many STEM competitions and also able to share our experiences at OSU and our ISE program to potential employers and fellow students." Luke, who has served the chapter as a senator, vice president and treasurer, says she plans to remain involved with NSBE's professional chapter now that she has graduated.