

ENGINEERING & TECHNOLOGY TIMES

SPRING 2017

News and Notes from the College of Engineering and Technology

Dedicated to Student Success, Regional Transformation and Public Service

DYNAMIC FUTURES: First class of ECU biomedical engineering masters celebrates degrees

For the fall 2016 graduation ceremonies, East Carolina University's College of Engineering and Technology lived up to the university's promise: Tomorrow starts here.

For the college, "tomorrow" is represented by the new Master of Science in Biomedical Engineering (BME) program, and it all started with Matthew Cadmus, Bryce Cranwell, Danny Vargas and Elizabeth "Blair" Meriwether Weaver. They are the first graduate students to earn degrees from the Department of Engineering, making history as they received their diplomas on Dec. 16.

Dr. David White, dean of the college, said that he's excited for any graduate of the college's programs, but these four are different.

"This is the first group of graduates of what I hope is a dynamic and innovative degree program," he said.

Biomedical engineering works to improve medical systems by applying engineering sciences, analysis and design to human health performance and medicine. As part of the M.S. in BME program, students are engaged in multidisciplinary research and the application of innovative, advanced technologies that solve complex problems in the health care industry.

Dr. Barbara Muller-Borer, an associate professor and graduate program director for the M.S. in BME program, said graduates will have a variety of career choices ahead of them; from tissue and neural engineering to prosthetics and imaging, biomedical engineering will lead advancements in numerous health-related fields.

Muller-Borer believes the ability to work with ECU's Health Sciences programs - the Brody School of Medicine, College of Nursing, College of Allied Health Sciences and the School



Dr. Barbara Muller-Borer, right, is the graduate program director for the College of Engineering's Master of Science in Biomedical Engineering program. She joined the graduates during the Dec. 16 graduation ceremonies.
(Photo by Patrick Fay)

of Dental Medicine - is a major factor in preparing these grads for fruitful careers. However, according to Muller-Borer, so is access to all of the college's engineering programs.

"Each M.S. student is required to complete a thesis project and include one faculty advisor from outside the department," said Muller-Borer. "Working on multidisciplinary teams, these four graduates were provided the opportunity to apply engineering principles to advance medical discovery and health care," she added.

The four graduate students agree with Muller-Borer, and they are aligned when it comes to the importance their thesis advisors played in obtaining their degrees.

The UNC Board of Governors approved the M.S. in BME program in 2014, and the program's first classes started in August of that year.

Vargas missed that start because he was becoming a U.S. citizen. Originally from Peru, Vargas received his undergraduate degree from James Madison University in Virginia.

Cadmus is from outside of Charlotte and received his undergraduate degree from ECU, as did Holly Springs-native

Cranwell. Weaver is a Greenville native but came to ECU after earning her undergraduate degree at Vanderbilt.

As their classes continued, there were discussions on what they should call themselves. The Fantastic Four was mentioned a number of times, but it didn't stick. However, they thought there was another Fantastic Four that was deserving of that name: their thesis advisors.

Dr. Muller-Borer served as Vargas' advisor, and Dr. Jason Yao advised on Weaver's thesis that looked at an innovative approach to help monitor congestive heart failure patients

at home.

Assistant Professor Dr. Sunghan Kim was Cadmus' thesis advisor. Regarding Kim's influence, Cadmus said, "I owe (Kim) a tremendous debt of gratitude. His guidance and kindness led me to the success I experienced at ECU."

Cranwell said his advisor, Dr. Ricky Castles, "had an immeasurable impact on my Masters' journey. He was more than a mentor - he was also a good friend."

White, who oversaw the creation of the new M.S. in BME program, sees a bright future for the four graduates and the program.

"If you come to ECU, you're going to have some tremendous opportunities to do some great things," said White. "This program is just one example of the many opportunities our students have to accomplish things that can change the world."

SPONSORED BY

Gregory Poole



Annual High School STEM Day Brings 300 Students to ECU



Area high school juniors recently visited ECU for the sixth annual High School Stem Day. Fifteen hands-on sessions were scheduled that represented a wide variety of education opportunities available at the University. (Photos by Cliff Hollis)

Nearly 300 high school juniors from across eastern North Carolina recently visited East Carolina University (ECU) to experience and learn more about Science, Technology, Engineering and Mathematics (STEM) opportunities offered at the University. ECU's College of Engineering and Technology, the Thomas Harriot College of Arts and Sciences, and the College of Education, including the STEM Center for Education, sponsored the event and provided more than 60 volunteers.

Students rotated through three of 15 hands-on, engaging sessions that were taught by current ECU faculty and students. Departments represented included engineering, physics, technology, mathematics, chemistry, biology, construction management, computer science, geology, geography, atmospheric science, math and science education.

Some of the hands-on learning sessions included:

- Learning about and how to extract DNA
- Determining the types of clays that might be addressed on a construction site
- Exploring how high-resolution 3D models are captured using a simulation of unmanned aircraft systems, and how to analyze and visualize environmental change
- Using cryptography to send secure messages and how it is used in the military for confidential communication and secure online banking, shopping and other applications

This annual event was the second STEM-related event held at ECU in as many weeks. Earlier, more than 140 area Girl Scouts participated in

TechnoQuest, which also was designed to introduce STEM to the participants.

Margaret Turner, director of marketing and outreach for ECU's College of Engineering and Technology, helped organize both events and also helped organize the five former high school STEM Days. Over the years, she's noticed a very obvious increase in students interested in STEM. Not only does STEM

Day introduce these students to exciting and interesting careers, Turner enjoys introducing these students to a university that can help them capture their future, STEM-related degrees.

"I see the excitement in the students' faces every time they step on campus and into the sessions," said Turner. "I'm fortunate to have the opportunity to let them know that if they do pursue a STEM-related career, ECU is a great choice to get them started.

Helping Turner organize this year's event were three college students pursuing their own STEM-related degrees in engineering. Juniors Jessica Campos, Meagan Smith, and Malik Simon provided Turner with project management support. As part of a class assignment in an engineering project management course, they helped Turner with everything from volunteer training, the session schedule, transportation and communication.

"STEM day was an effective way to show how much detail goes into planning an event," said Smith. "There were months of meetings that involved brainstorming on how to improve the planning process and ways to improve how the day would flow."

Part of that

brainstorming saw the introduction of social media to help with communication between all volunteers. The application that was used is called GroupMe.

"We had volunteers outside Wright circle waiting for high schools to drop off their students, and with this app, our volunteers were able to tell us what schools were here, where to meet them, the final number of students they brought and more," said Campos. "Throughout the day we were able to communicate any issues that arose using GroupMe, and with everyone's input, we were able to resolve those issues."

"Jessica, Meagan and Malik did a wonderful job in helping make sure we had another successful STEM day," added Turner. "I think they learned a great deal about the many logistics involved in organizing such a large event. They were also proud to see the event happen and go smoothly and realize they had a large part in planning it."

This was the first time college students helped with managing the event.

Meet the New Director of Laboratory Operations



Name: Chad Spruill

Title: Director of Laboratory Operations

Hometown: Plymouth, North Carolina

What will you be doing for the college?

I lead and manage the CET laboratory facilities related to the delivery of instruction and research.

Why did you choose to come to ECU?

I originally came to ECU because of the Biology program. They have one of the best programs around, and the professors are outstanding. It also worked out well because ECU was not far from home, and I knew that I wanted to stay in eastern North Carolina.

What would people be surprised to learn about you?

In 1990, I met the San Francisco 49ers in the Denver airport. I got all of their autographs except for Joe Montana's. After hearing this, my grandfather (huge 49ers fan) reached out to Joe, who subsequently sent me several autographed items, including a helmet.

Message from the Dean

Building our Reputation and Impact

Greetings to all our alumni and friends from ECU's College of Engineering and Technology! Our College and the University, in general, had a great year! Our reputation is growing as a direct result of the positive impact we are having on students and the region.

We will hold our second Engineering and Technology Academy this summer thanks to the support of the Duke Energy Foundation. Led by Margaret Turner and Leslie Pagliari, we will again host rising 9th grade girls in late July. I am excited about our impact on the region and these opportunities allow us to grow our own talent in eastern North Carolina.

Summer orientation will be underway soon. We expect another record year for enrollment. We are expecting to have over 3300 majors in our graduate and undergraduate programs. We have doubled the size of the College in the past 10 years. I am grateful for the strong effort our faculty and advisors continue to provide to assure that we are maximizing our students' success opportunities.

As our numbers grow, our need for your support also grows. We have targeted a goal of 100 scholarships in the College over the next two years. We are at about 75 now, so I hope we can work to meet our goal of 100! Remember that many of our students are first generation college students and many must work to make ends meet. Scholarships, no matter the amounts, are very important to our students. You can establish your own named scholarship or you can contribute to any of the departments' scholarship pools. Please contact me or Margaret Turner if you are interested

in setting up a scholarship in the College.

The University has high expectations for the College for research productivity. I am pleased to report that our externally-funded research productivity is increasing, but we are not where we need to be yet. Recently the Environmental Protection Agency (EPA) asked if they could highlight the research being produced by our Center for Sustainability. This is a great recognition of our work, and it can lead us to greater recognition and more opportunities. Our College will be a major player in Chancellor Cecil Staton's goal of making ECU the "next great national university."

As I write this message a search is underway for a new dean of the College. I will be moving to the Honors College as the new dean. The move is exciting yet difficult for me. We have a great Leadership Team, and I certainly will miss this group! But now the College has the opportunity to go for a new leader who can take us to new heights!! I will remain the College's biggest advocate no matter where I am on campus!

I hope you have a great summer and remember the College of Engineering and Technology in your gift plans. Please help us continue to deliver the programs that allow our students and faculty to prosper! Come for a visit! We would love to see you!

- David M. White, Dean



*David White, Dean
College of Engineering
and Technology*

Computer Science and Business Students Participate in Hackathon

Between 9 p.m. Feb. 23 and 8 a.m. Feb. 24, 16 students from the College of Engineering and Technology (CET), the College of Business (COB) and other University colleges came together to help launch a company.

The College of Business' Student Technology Center hosted a hackathon where these students created a website, or what they call a web store, for gamers, musicians, writers, artists, etc., to sell their content.

"I was working on a project in my spare time," said Samuel Carraway, a CET junior from Chapel Hill. "I wanted to make it a reality."

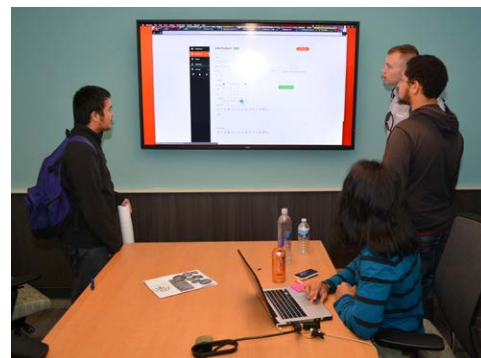
Carraway said he participated in two hackathons off campus and that's where the idea germinated to have a hackathon at the University. He presented the idea to the recently formed student organization, EPIC or Empowering Pioneers through Innovative Culture, which includes students from all over the University who have an entrepreneurial spirit.

To help cultivate that spirit, COB's Miller School of Entrepreneurship and instructor David Mayo oversaw that hackathon's proceedings. Though these types of events are usually software intensive, Mayo believes it's important to have a business component, as well.

"This hackathon not only produced a product, but we also came out with a business model that makes that product useful for the owner and the customer," said Mayo. "Entrepreneurship acts as a bridge for that innovation."

"We liked this collaborative atmosphere and having people from different majors and backgrounds come together," said CET senior and EPIC co-president, Magus Pereira. "The hackathon was a good experience."

Along with the new web store, a business plan was also finalized to help the store go to market. Teams of engineering and business students focused on three areas: the building of the website, a Kickstarter campaign,



The Feb. 23 & 24 hackathon included students from both the College of Engineering and Technology and the College of Business. (Photo by Michael Rudd)

and a business model canvas. Business senior Christopher Rudkowski joined the hackathon and was anxious to take what he's learned and put it to practical use. He said, "I've never been so immersed in a situation where we can get together and make something work."

Business senior Dakota Votaw had never participated in a hackathon, but he's glad he joined in this one. "It was a very positive experience for everyone," he said. "I don't think anyone left there thinking it was a wasted night."

Students and Employers Benefit from 2017 Career Networking Day

Adorned in business attire and armed with updated resumes and talking points, more than 400 students from the College of Engineering and Technology and the College of Business jammed the University's Murphy Center Thursday, Feb. 9. to network with potential employees and possible references.

The College of Engineering and Technology's eighth Annual Career Networking Day brought these students together with approximately 150 representatives from 55 statewide companies. Representatives greeted students with company information and business cards. Sidebar conversations, networking tips, and new relationships were the order of things once the event started at 1 p.m.

"The goal of this event, which was the most attended one to date, was not about finding jobs. It was more of a networking event so students can learn how to communicate and sell themselves to potential employers," said Dr. Leslie Pagliari, associate dean of the College of Engineering and Technology. "We wanted to make sure they were prepared for next month's spring Career Fair."

Sarika Merchant, a junior with the College of Engineering and Technology, made sure her resume was up-to-date and reviewed talking scripts before

the event. She also took it upon herself to learn a little about the companies who were in attendance. The benefit from doing this one step, she believes, is strong.

"If you go up to them and say I know about your company and this is what you do, it shows that you have done the research and that you are actually interested," said Merchant.

To those students who did not attend the annual Career Networking Day, Senior Magus Pereira says they are missing out, "on making the network connections with recruiters. Even if they don't get the opportunity, they could have gotten their names across to the recruiters and what they're working on."

Students were not the only ones who benefited from this networking event. Employers got a chance to learn more about what graduates from both colleges can potentially bring to their organizations.

"These events are ideal because, as an alumni, I get to give back to the students and the faculty," said Mark Bray, supply chain director with ACR Supply Company. "As an employer, we



The Feb. 9 Career Networking Day broke attendance records, with more than 400 students attending and 55 companies exhibiting at the event. (Photo by Cliff Hollis)

have the opportunity to hire interns...and sometimes we get to hire them after the internship. It's (the event) been a great resource for the company."

This event was the first one that Tammy Wilkins of Vidant Health had attended. She was excited to be there because she knew the event would give Vidant Health an opportunity to, "network and build relationships with students and help them learn about the initiatives and services that Vidant provides."

Organizers and exhibitors at the event said they were not only encouraged by the quality of senior and junior level students that participated, but they were also excited to see sophomores attend and understand the importance of networking events such as this one.

Newly Installed Alpha Eta Mu Beta Initiates Charter Students

The College of Engineering and Technology's newly installed Alpha Eta Mu Beta chapter recently initiated its charter members during a ceremony on campus. Six juniors and seniors were joined by Dean David White, chapter advisors Dr. Barbara Muller-Borer and Blair Weaver, and other engineering faculty for the ceremonies.

According to its website, Alpha Eta Mu Beta, the National Biomedical Engineering Honor Society, was formed to recognize and encourage excellence in biomedical engineering and

bioengineering. Its purpose is to bring individuals from both fields into a closer union to help understand and promote the profession.



Pictured, from left to right: Blair Weaver, Dr. Sunghan Kim, Dr. Barbara Muller-Borer, Andrew Ritz, Gurnoor Sangha, Marissa Bochenek, Victoria Myers, Melinda Plyler, Drew Navarro, Dean David White, Dr. Colleen Janeiro and Dr. Ricky Castles.

New initiates included: Victoria Bibiana Myers (senior), Melinda Victoria Plyler (senior), Andrew Michael Ritz (senior), Gurnoor Kaur Sangha (senior), Marissa Anne Bochenek (junior), and Drew Eliot Navarro (junior).

"Students inducted into Alpha Eta Mu Beta represent the top academic performers pursuing an engineering degree in the biomedical concentration," said Weaver.

The chapter will receive its official charter, and founding members will be recognized during the national Biomedical Engineering Society's annual conference in October.

IEEE Installs New Honors Chapter at ECU

The College of Engineering and Technology witnessed history. The Institute of Electrical and Electronics Engineers (IEEE)-Eta Kappa Nu (HKN) Mu Lambda Chapter was recently installed at the college. The new chapter, as part of its ceremonies, also inducted three area professionals and seven engineering students as its charter members.

The IEEE HKN Mu Lambda Chapter charter members include:

- Bryan Barrera, senior
- Davis Harrison, junior
- Dean Lamonica, senior
- Michael David Soule, senior
- Keith Hill, engineering & facilities manager, Fresenius Kabi USA
- Ethan Thomas, electrical engineer, Edgcombe Martin Corporation
- Ricky Castles, assistant professor, Department of Engineering, College of Engineering and Technology, ECU

Charter chapter officers include:

- William F. Clukey Jr, secretary and treasurer
- Karl Durancik, vice president
- David Leake, president

Jim Conrad, IEEE Region 3 director and a UNC-Charlotte professor, officiated the installation. Dr. Jason Yao, associate professor in the College of Engineering and Technology, will be the chapter's adviser.

According to IEEE's website, IEEE-



The Mu Lambda Chapter of IEEE's Honor Society, Eta Kappa Nu, was recently installed at ECU's College of Engineering and Technology. Participating in the ceremonies were (left to right), Dr. Jason Yao (chapter advisor), Dr. David White (college dean), Dr. Hayden Griffin (Dept. of Engineering chair), Jim Conrad (IEEE Region 3 director), Karl Durancik (chapter vice president), David Leake (chapter president) and William Clukey, Jr. (chapter secretary and treasurer). (contributed photo)

Eta Kappa Nu (IEEE-HKN), the honor society of IEEE, is dedicated to encouraging and recognizing individual excellence in education and meritorious work, in professional practice, and in any of the areas within the IEEE-designated fields of interest.

Yao sees the Mu Lambda chapter as a way for its student members, who are juniors and seniors majoring in electrical engineering, to connect and network with professionals who can pass along their insights and experiences.

"These professional individuals will be great resources that students can approach for career-related advice," said Yao. "It is also our hope that by inducting successful professionals in the electrical engineering-related fields, we create a body of role models for future students."

Though Mu Lambda's mission is still being defined, Leake does see the chapter focusing on and promoting

industry awareness. He also is thinking about the legacy this chapter will hold for future members.

"I hope to see the Mu Lambda chapter become an integral part of the East Carolina University engineering community," said Leake. "The chapter should promote integrity in engineering, research in current engineering issues, and continuous pursuit of engineering excellence through community involvement and academic endeavors. The Mu Lambda chapter will represent the best up-and-coming engineers at ECU."

The new chapter does not replace the student chapter of IEEE, which was started in 2013 and whose first president was charter Mu Lambda inductee Thomas. Mu Lambda will serve mainly as the recognition arm of the current student chapter and will assist it with regular activities, guest speakers and competitions.

Meet Michael C. Rudd



Title: Public Communications Specialist, College of Engineering and Technology (and College of Business)

Hometown: West Palm Beach, Florida

What will you be doing for the college?

Developing content based on the wonderful stories coming out of the college and figuring out the best way to disseminate those stories. Whether it be social media channels (see graphic re: what to follow), this newly created blog,

college literature or the university's news services, my goal is to disseminate everything this college has to brag about.

Why did you choose to come to ECU?

My background is in public relations and content development. I supported information technology and engineering contractors who sold their products and services to the United States government and its military. I wanted to get back into academia, and when this opportunity presented itself, I jumped. I'm so glad the college gave me a place to land.



TechnoQuest at ECU Brings Girl Scouts to STEM-Related Event

East Carolina University's College of Engineering and Technology, along with Girl Scouts - North Carolina Coastal Pines, recently hosted TechnoQuest on ECU's campus.

The event brought in more than 140 middle and high school Girl Scouts from eastern North Carolina (ENC) to participate in four of 15 hands-on, science, technology, engineering and mathematics (STEM) -related workshops. From DNA testing to 3D modeling and 3D printing to simulated geographic occurrences, local businesses, ECU faculty and students shared their expertise and passion with the TechnoQuest attendees.

One attendee was Laressia Steadman of Goldsboro, North Carolina. She's an 11-year old with the Girl Scouts - North Carolina Coastal Pines. TechnoQuest was Steadman's first STEM-related event, but it was not an introduction to the components of STEM. According to Steadman, she loves "learning about the makeup of things in genetics. It's one of my favorite things to learn in science."

It was this love of science that led Steadman to a very particular workshop that showed the Girl Scouts how to extract DNA from strawberries. Working with the East Carolina University Graduate Women in Science, Steadman used simple laboratory

techniques to help with the extraction. What did she learn?

"DNA, even though it's very small, it is very important," said Steadman. "It really makes up what an object or a person is."

It's this type of experience that the event organizers were hoping the attendees would receive. According to Dr. Laura Novotny, STEM program director with Girl Scouts - North Carolina Coastal Pines, the experiences would not have been possible without the workshops themselves.

"What is remarkable, though, and unique to this event, is the cross-department collaboration of ECU faculty and students that led to the rich diversity of STEM-workshop topics that were offered," said Novotny.

More than nine university-wide departments and programs were



Learning more about physical therapy was one of 15 STEM-related workshops recently held at TechnoQuest on ECU's campus.
(Contributed photos)

represented in the workshops. The College of Engineering and Technology, Thomas Harriot College of Arts and Sciences, the College of Allied Health, and the Brody School of Medicine's pharmacology department all had faculty and students volunteering at the event.

This was the first time ECU hosted TechnoQuest, which is a specific event held by the Girl Scouts - North Carolina Coastal Pines. TechnoQuest is traditionally held at Meredith College, but according to Novotny, an expansion of a Duke Energy grant to

establish a second TechnoQuest made it possible for ECU to host the event.

The College of Engineering and Technology hosts multiple STEM events on campus annually. For more information about STEM events and camps, contact Margaret Turner at turnerm@ecu.edu.

Five ECU Students Receive Scholarships from TiMOTION

Thanks to a company that "believes strongly in moving toward a better future," five engineering students from the College of Engineering and Technology are each the recipient of a \$1,000 scholarship.

In a recent news release, Taiwan's TiMOTION and its North American Subsidiary awarded these scholarships, which will benefit full-time students of high academic standing who are

enrolled in engineering programs. The company considers these awards an investment in the engineers of tomorrow.

Scholarship recipients include: Basal Abdelfattah, Laith Damreh, Travis Harrison, Jamie LoScalzo, and Patricia Malcolm. All five students are from North Carolina.

Junior Jamie LoScalzo is from New Bern, and she's currently president of the Dean's Student Leadership Advisory Council for the College of Engineering and Technology. About the scholarship, she said, "this award helps to alleviate my financial concerns for next semester, and will allow me to focus on my coursework, as well as my extracurricular activities within the college."

Laith Damreh, a junior from Raleigh, echoed LoScalzo. "This opportunity is very helpful because, with the scholarship, I can work less so I can focus more on my academics."

Goldsboro's Malcolm knew from an

early age that paying for her education would fall squarely on her shoulders.

"My parents told me from a very early age that they would not pay for my college education and that I would be responsible for it myself," she said. "Getting this scholarship will allow me to continue pursuing my education goals."

Abdelfattah is from Greenville. Like the other ECU scholarship recipients, this scholarship will have an impact. "It's motivation for me to work diligently for academic success," said Abdelfattah. "The scholarship will help lessen the impact of my tuition costs."

As part of this funding, TiMOTION said it will provide "products for classroom learning and projects."

TiMOTION is an industry-leading provider of electric linear actuators worldwide.



Assistant Professor Wins \$12,000 Grant for Acoustic Detection of UAVs



Dr. Teresa Ryan, an assistant professor in the College's Department of Engineering, is the new recipient of a \$12,000 grant from the NC Space Grant New Investigator Program.

The grant will extend an existing

Office of Naval Research project that's looking at how to predict the on-shore detectability of ships given current weather, such as winds, sea state and temperature profile. Specifically, this grant will directly fund the characterization of the full sound field from an unmanned aerial vehicle (UAV) in operation. The measurement tools that will be developed for the research could

potentially be used for many other acoustic measurement applications, e.g., noise pollution measurements.

About the new grant, Dr. Ryan says, "I'm particularly excited about this

project because it is a collaborative effort with one of the local high schools, South Central High School (SCHS). I have partnered with Principal Janarde Cannon and science teacher Elizabeth Pate at SCHS, as well as select high school students to participate in the field measurements that will take place on the school's campus. It's a great opportunity for them to witness research in action, get excited about engineering, and see firsthand that a future in engineering doesn't mean life in a cubicle."

"This research is complementary to Dr. Ryan's ongoing efforts to understand and exploit outdoor sound propagation," said Dr. Hayden Griffin, department of engineering chair. "The results of this work are important to some fields, including national defense and support of our warfighters. Given the number of UAVs currently in use and planned implementation, this research will also aid in public safety and understanding of how to mitigate potential threats from UAVs."

Center for Sustainability Helps NC Wineries and Breweries be Lean and Green

Thanks to a two-year, \$110,000 grant from the Environmental Protection Agency, ECU's Center for Sustainability within the College of Engineering and Technology worked with five North Carolina breweries and five wineries to help them with pollution prevention (P2) and minimize waste.

The project, called Lean and Green at North Carolina Wineries and Breweries, assessed ways these facilities can reduce pounds of pollution, conserve energy and water, reduce greenhouse gases and save money through economy, energy and environment best practices. The college also provided on-site Lean and P2 diagnostic assessment and follow-up technical assistance.

"The North Carolina wine and beer industries are primarily dominated by small to mid-sized operations, many of whom lack particular expertise or access to knowledge of energy and water conservation and waste reduction," said Dr. Tarek Abdel-Salam, the grant's principal

investigator and director of ECU's Center for Sustainability. "The goal was to provide hands-on technical assistance to industries that appeal to green-minded consumers and who are likely inclined to adopt green practices."

Abdel-Salam, along with co-investigator Dr. Kanchan Das, two graduate students, and 10 undergraduate students, visited facilities to identify areas of potential and necessary environmental improvement. Data was collected from each site that looked at energy, water, sewer usage, costs and production characteristics.

After assessing the data, recommendations were provided to the breweries and wineries. These recommendations found expected energy savings in four potential areas: HVAC Systems, Refrigeration Systems, Sterilization, and Lighting.

Suggested changes focused on steps that included adding solar panels,



boiler adjustments, silo locations, piping, filtering and others.

According to Abdel-Salam, some facilities have implemented these recommendations and some have adjusted their strategic planning to reflect the suggestions.

"Our reports highlighted how the minimal investment to implement changes would show savings in one to five years," said Abdel-Salam. "In a state that has over 140 wineries and 120 breweries, the competition is fierce and every little bit of savings counts."

Abdel-Salam recently presented his findings at the international Top-Level Forum on Engineering Sciences and Technology Development Strategy in China.

ENGINEERING & TECHNOLOGY TIMES is published by the office of Marketing and Communications. You can read **ENGINEERING & TECHNOLOGY TIMES** online at www.ecu.edu/cet under the News tab. For more information about this publication, please contact Leslie Pagliari at pagliaril@ecu.edu or Margaret Turner at turnerm@ecu.edu.

Center for Sustainability holds 1st Symposium

The College's Center for Sustainability held its first Sustainability Symposium Feb. 20, 2017. During the event, presenters discussed ways sustainability can be integrated into research and industry practices, especially those that will benefit eastern North Carolina. It also promoted approaches that adopt and implement inclusive views of the key dimensions of sustainability: environmental, economic and social.

"We presented thought-provoking examples of sustainability ideas, analyses and practices that are available to our region's farmers and agricultural organizations so they can maintain and grow their businesses and be good stewards of the environment, as well,"



said Dr. Tarek Abdel-Salam, event organizer and associate dean of research and graduate studies for the College.

Pam Swingle of the Environmental Protection Agency was the keynote speaker. She is the agency's pollution prevention program manager for the Region 4 Office of Environmental Justice and Sustainability. She is responsible for administering pollution prevention and sustainability programs and providing technical assistance within Region 4's eight, southeastern states.

Symposium discussions included:

- 1. We know how to do this: Sustainability and Energy:** *Ged Moody, Appalachian State University, special assistant to the Chancellor for Sustainability*
- 2. What does food have to do with sustainability?:** *Rebecca Dunning, NC State University, Department of Horticultural Science*
- 3. Strategies to protect water resources in agricultural watersheds:** *Mike Burchell, NC State University, Biological and Agricultural Engineering*
- 4. The vulnerable food, energy, and water system in the Caribbean:** *Scott Curtis, East Carolina University,*

Geography

5. Soil Conservation and Organic Farming: *Kristi Hocutt, sales manager, Triple J Produce*

6. Organic Feasibility: *Thomas Moore, food systems coordinator, Carolina Farm Stewards*

The symposium also included a student/faculty poster session, which covered all areas of sustainability-related research including tourism, water, energy, agriculture and buildings.

The event was supported by the Pitt County Development Commission, College of Engineering and Technology, the Center for Innovation in Technology and Engineering Outreach (CITE), and Phi Kappa Phi.



**Stay Connected
Over the Summer!**

@ECUCET

@ECUCET

CETATECU

blog.ecu.edu/sites/cet/