From the Dean

CETA prides itself on a highly engaging, hands-on curriculum that enables our students to immerse themselves in our programs of study. We follow a paradigm of problem-based learning that starts with the endpoints of what students want to accomplish—for example, a mechanical design or an electrical circuit, and then move on to the engineering principles we need to realize that design, the theories that underlie those principles, and the mathematics at the foundation of the theories. This makes learning immediate and real. The College also practices what is now becoming known as integrative learning. Similar to the mathematical operation of integration, this is a cumulative summing of the educational experiences that all contribute to the training of an engineer, technologist, or architect.

Our four year design sequence is an excellent example of integrative learning. Each year’s design challenge builds upon skills and experiences from the curriculum, synthesizing them into increasingly detailed design work. The capstone project is then a culmination of the integrative learning process calling upon many of the skills that were learned throughout the four year curriculum.

Our faculty hiring process emphasizes teaching innovation as one of our core requirements. The new full time and visiting faculty featured in this newsletter embody excellence in teaching as well as research prowess. They help us fully embrace our model of teacher-scholars that not only engage our students in immersive learning, but effectively integrate their learning experience to produce outstanding professionals. It is not surprising that our graduates rank among the highest in the nation in Business Insider’s 2016 rankings of mid-career earnings. The CETA faculty and staff have prepared them well through an innovative learning plan that underscores both engagement and integration.

Louis Manzione, Dean
Todd Brown
Department of Civil, Environmental, and Biomedical Engineering

Assistant Professor Todd Brown joined the department of civil, environmental, and biomedical engineering. He holds an undergraduate degree in hydrology and a master’s in civil engineering from the University of New Hampshire. Through his more than 30-year career at Tighe & Bond and the U.S. Army, he has gained broad experience with investigation and remediation of contaminated sites, biosolids dewatering and drying, regulatory compliance, industrial and municipal wastewater treatment, wastewater collection system and pump station design, combined sewer overflow planning and treatment projects, water distribution system design, dam and spillway repairs, storm water management, air pollution, odor control, and building demolition.

Kiwon Sohn
Samuel I. Ward Department of Electrical and Computer Engineering

Kiwon Sohn joined the faculty as assistant professor of electrical and computer engineering. He holds a PhD in mechanical engineering from Drexel University, a master’s degree in electrical engineering from University of Pennsylvania, and a bachelor’s degree in electrical engineering from Kyungpook National University in South Korea. He was a founding member and a lead researcher of Drones and Autonomous Systems Lab at the University of Nevada. His primary research direction has focused on application of interdisciplinary technologies for complex robotic systems. Kiwon is interested in continuing his research in advanced robotic systems such as humanoids with a focus of vehicle driving, material handling, and human-robot-interaction. He is also looking forward to offering various classes in robotics, computer vision, and machine learning.

Visiting Assistant Professors

CETA is proud to bring three visiting professors to the college this academic year.

» Hernan Castaneda M’16, Department of Civil, Biomedical, and Environmental Engineering

» Ali Kosa M’16, Samuel I. Ward Department of Electrical and Computer Engineering

» Enrico Obst M’16, Department of Mechanical Engineering
Kamau Wright
Department of Mechanical Engineering

Assistant Professor Kamau Wright joined the department of mechanical engineering following four years as an assistant professor and director of the master of mechanical engineering program at Saint Martin’s University in Lacey, Washington, and visiting assistant professor at Shanghai Normal University in Shanghai, China. He was an aerospace engineer at USDOT Volpe National Transportation Systems Center in Cambridge, Mass., and worked in the propulsion division at the NASA Glenn Research Center in Cleveland, Ohio. While at St. Martin’s, he worked on thermal modeling of computer components, aircraft wake turbulence mitigation, active control of flow-excited resonators, and the fluid mechanics of open rotor propulsion systems.

Kamau Wright
Department of Mechanical Engineering

Assistant Professor Kamau Wright joined the department of mechanical engineering after earning a doctorate and master’s in mechanical engineering and mechanics from Drexel University, as well as a bachelor’s degree from Howard University. He has also taught at Stevens Institute of Technology. While at Drexel, he was awarded a National Nuclear Security Administration (NNSA)-sponsored HBCU STEM Fellowship and an NSF Graduate STEM Fellowship in K-12 Education. He specializes in thermal and fluid sciences, and plasma engineering, and his research interests include applications of high voltage plasma discharges to liquids and waste waters, fouling prevention for heat exchangers, oxidation of organic matter in water, and inactivation of bacteria using high voltage plasmas.
Assistant Professor
Eoin King is the
winner of the 2016
Belle K. Ribicoff
Junior Faculty Prize.

Eoin King, assistant professor of mechanical engineering and acoustics in the College of Engineering, Technology, and Architecture (CETA), received the 2016 Belle K. Ribicoff Junior Faculty Prize. The prize recognizes excellence in teaching, scholarly or creative activity, and service. It includes an award of $10,000 to further enhancement of an existing scholarly project, a new investigation, and/or support of the awardee’s professional development goals and was presented to King at Commencement in May 2016.

In what has become an annual tradition, Provost Sharon Vasquez delivered the news to a surprised King in a manner similar to the Publishers Clearinghouse presentations. King and his senior students were working in the acoustics lab on Wednesday, April 11, when Vasquez came in to make the announcement. She was joined by Professor Bob Celmer, program director of the Acoustical Engineering and Music program in CETA and The Hartt School, as well as Emily Meachon ’16, the student member of the Search Committee.

“This is a big deal,” Vasquez told King’s students. “The donor, Belle K. Ribicoff, wanted us to honor a faculty member who exemplifies a teaching scholar...it is someone who not only is excellent in the classroom and supportive of students in and out of the classroom, but also takes their scholarship and research seriously and pulls as many students into that as possible.”

For example, King guided two students through an environmental noise study on the High Line in New York City last year. Their research was published in an academic journal, they presented at an international conference, and received positive press coverage. King also set students up with a Fulbright Scholar to conduct research that resulted in publication and he was the faculty advisor for students who organized the University’s first TEDx in fall 2015.

April 2016 was certainly a good month for King. Just a week before winning the Belle K. Ribicoff Junior Faculty Prize, he and his wife welcomed their first child, a girl named Eavan Julia King.

The annual Ribicoff Junior Faculty Prize, together with an endowed chair for junior faculty, was established through a generous gift from Belle K. Ribicoff, a long-time supporter and life regent of the University. Each year, the prize recognizes an outstanding junior faculty member – one who is in a tenure track position, but not yet tenured. King is the eighth winner in the history of the prize.
University Ranks High On List of Colleges Where Engineering Grads Earn the Most

Earning an engineering degree at the University of Hartford pays. That’s the word from Business Insider magazine, which just published its list of “colleges where engineering students go on to make the most money.” The University’s College of Engineering, Technology, and Architecture (CETA) ranks #14 on the list right alongside MIT, Carnegie Mellon, Tufts, and Cooper Union. (See the full list and read more about Business Insider’s methodology in the September 28, 2016 online edition.)

“The high ranking in this nationwide survey is a credit to our accomplished alumni and the faculty and staff who prepared them so well,” says CETA Dean Lou Manzione. “We emphasize career readiness and hold many events where our students engage with our partner companies. This helps them to launch into their careers, realize early success, and sustain that success through solid understanding of the profession.”

Read the press release
hartford.edu/business-insider
A Plan For Bushnell Park

by Amelia Hemingway-Martin ’18

Elizabeth Petry, a professor of architecture at UHart, uses High Impact Practices in her classroom. In her third year architecture class, Petry uses collaborative assignments/projects as a guideline for the masterplan project. The students are divided into teams to work together on a real world problem. At the end of the three-week process, they present their work and evaluate each other’s contributions. The real world project asks students to work as a team to make a plan for a future development in Bushnell Park in Hartford, Conn., which includes a site plan analysis.

Petry gave her students city’s planning board specifications which includes retail, residential, commercial, medical, and governmental buildings. The plan must also include roadways, pedestrian walkways, and a parking garage. The students present the existing park plan, a park plan analysis diagram, a proposed program, a proposed park plan, and a project summary, schedule, and budget.

The high impact practice that Petry uses, collaborative assignments, focuses on teamwork. Many jobs after college are group based, so students get a head start on learning to manage multiple thoughts and ideas.
Inquiry-Based Learning in Undergraduate Engineering

Professor Ivana Milanovic has used problem–based and project-based learning in her classroom for years and now implements Inquiry Based Learning (IBL), which has become a popular approach in undergraduate engineering because it calls for students to envision a project or problem scenario and identify their own solutions—in ways that are more meaningful to them. With IBL, her undergraduate students are performing computer–based simulations usually reserved for the graduate level.

Junior level heat transfer and fluids classes now include a reasonable amount of research and simulation. IBL addresses the need for a broader strategy aimed at improving understanding of complex material, modeling skills, and research capabilities in the core thermo–fluids courses. It also endeavors to support students through varying ways of engaging in math, since the use of differential equations is critical to this study, and allows Milanovic to bring into her course immersive and exciting visuals that support in-depth learning.

In addition, Milanovic transformed her lecture courses into an integrated learning environment (face-to-face and online) with embedded simulations and application building. Learning modules provide step-by-step instruction with visuals, interactive simulations, and software tutorials. Theory and problems are covered in the classroom, while simulations are completed outside of class. This format makes accomplishing simulations exciting to students, thus making them more productive.

Her objectives are to:
- Better illustrate thermo–fluids concepts
- Embed simulations and research in the curriculum
- Facilitate application building
- Use a combination of Project Based Learning (PBL) and Inquiry Based Learning (IBL)
- Enhance outside–of–classroom learning

A New Format in First Year Dialogue

CETA First Year Dialogue courses have gone through a major change this academic year, making them more interactive and dynamic. The courses traditionally cover general information such as policies, regulations, majors in the college, and clubs in a classroom setting environment. Activities inside our labs and studios were introduced. ES 101 Engineering Freshman Dialogue and ET 111 Intro to Engineering Technology students are now required to spend only half the semester in the classroom, attend three mentor sessions, and three demonstrations in the labs and studios of CETA.

Associate Dean Alnajjar introduced the demos to the freshmen courses as part of the First-Year Experience. “The demonstrations will help our students experience engineering, technology, and architecture principles first hand with our experienced faculty in our many labs and studios which will help in engaging our students and keeping them informed.” Typically each demo is offered 4–5 times and students are given the choice to select three demos, ideally outside their major.

During the electromagnetic fields demo by professor Tom Eppes, a sudden twang by a charged defibrillator drawn toward a high powered magnet surprised the group, including Aikaterini Stylianides ’20, who said, “Being able to get a hands on demonstration creates a more exciting learning environment for me.”

NEW COURSE ELEMENTS:
- Simulations with IBL
  - Students learn with the aid of mentoring how to develop & answer a research question

Figure 1. Secondary Vortex

Figure 2. Simulation: Forward Facing Step [Student Research]
CETA Students Take First and Second Place in Statewide CTC Engineering & Manufacturing Skills Challenge

Six students from the University of Hartford’s College of Engineering, Technology, and Architecture (CETA) proved themselves to be among the next generation of engineering innovators after capturing first and second place at the Connecticut Skills Challenge on Nov. 10 at Rentschler Field in East Hartford, Conn. They, along with students from 11 other colleges, had three hours to come up with a way to improve access to clean water across the world. They then presented their solutions to a judging panel made up of industry leaders.

Computer engineering students Rosemarie Day ’17 and Adam Haggett ’18 and electrical engineering student Brenda Salazar Bautista ’17 took home the top prize of $5,000 for their water filtration system. The team worked on solving the problem of contaminated water which kills as many as two million people every year in Latin America.

“Our filtration system uses local products to purify the water and can be implemented in any container (therefore) allowing for families to store clean water at a cost of about $30-40 for one year of use,” Adam explains.

The three CETA students, who happen to be best friends, attribute their win to team dynamics and planning. “We were all on the same page. We dedicated a brief time to decide on an idea, time to research and develop it, and an hour in the end for designing and preparing our presentation,” Rosemarie says.

First Place Winners of $5000 prize
Rosemarie Day, BSCompE, computer engineering ’17
Adam Haggett, BSCompE, computer engineering ’18
Brenda Salazar Bautista, BSEE, electrical engineering ’17

Second place winners to share $2500
Jared Deleon BSME, mechanical engineering ’18
Brady Hoddinott BSME, mechanical engineering ’18
Paul Mangelsdorf BSE, acoustical engineering & music ’18
Second place winners Jared Deleon ’18 and Brady Hoddinott ’18, who are mechanical engineering majors, and Paul Mangelsdorf ’18, an acoustical engineering major, designed a low-cost, low-maintenance solar water distiller. It uses sunlight to evaporate water, allowing it to condense and drain into a holding tank that is designed to fit into the bed of a pickup truck for easy transport into underdeveloped areas. The team will split the $2,500 prize.

“We were all on the same page. We dedicated a brief time to decide on an idea, time to research and develop it, and an hour in the end for designing and preparing our presentation,” Rosemarie says.

“We are so proud of our teams for excelling in this statewide competition,” says Lou Manzione, dean of CETA and director of Research Collaboration and Economic Development. “Our teams excelled in both engineering and communications skills. These are real metrics for success in our profession.”

Following the competition, the CTC hosted a job and internship fair.

See more photos from the event at hartford.edu/ctc-challenge-photos
Biomedical engineering (BME) faculty offered a summer workshop for middle school science teachers called BME-4-STEM. This three-week workshop was developed to bring applications of BME into science curriculum. Connecticut has adopted Next Generation Science Standards (NGSS) science standards. BME-4-STEM will help middle school teachers with developing curricular units that align with NGSS and introduce students to biomedical engineering. For example, one lesson is to introduce students to how anatomy, physiology and biomedical engineering are relevant to their daily lives.

The Co-PIs of BME-4-STEM are Professor Mary Arico, of UHart, Professor Harry Blaise at Trinity College, and Jerry Crystal of CREC Academy of Aerospace and Engineering. This project is the first funded program out of Hartford.Health.Works and is funded by Connecticut Health & Educational Facilities Authority (CHEFA).

Professor Andrea Kwaczala of UHart and Professor Joe Paladino of Trinity College taught biomedical topics to five middle school teachers. Participants were from Hartford Public Schools, CREC schools, and Talcott Mountain Science Center. In addition to instruction on biomedical topics, the three-week program also included presentations from industry using real-world applications, development of curriculum, and piloting the curriculum as one-day sessions to over 100 children in summer camps and summer school programs in the Hartford area. The program concluded with a behind-the-scenes tour of Medtronic in North Haven, Conn.

The curriculum will be adapted for use this academic year in the five participating middle schools. Professor Arico focused on industry involvement and evaluation of the program. Two teaching assistants, Jackie Maynard '17, biomedical engineering major at UHart and Jessica Voight, biomedical engineering major at Trinity College, helped run the labs and connect the engineering to the science. The middle school teachers helped identify what engineering applications were best for the middle school level student.

Next steps will include further evaluation, data analysis, and follow up with the middle school teachers in the fall term and applying for more funding. BME-4-STEM will also be presented at the Connecticut STEM conference in the fall hosted by ENHP.
Students are invited to participate in our career readiness programs.

RESUME BOOT CAMP
Thursday, February 9

BUSINESS TECHNOLOGY FAIR
Tuesday, February 21

Networkology #3
Interactive Discussion with CETA’s Board of Visitors
Friday, February 24

Networkology #4: Student/Professional Networking Dinner
Thursday, March 30

CETA DESIGN EXPO
Capstone Design Projects and Sophomore Design Projects
Friday, May 5

Please let us know which events you are interested in by contacting Ricky Barrett (ribarrett@hartford.edu).

For more information about participating in CETA Design Expo or either Networkology event, please contact Julie Spring (jspring@hartford.edu).
UNIVERSITY OF HARTFORD

COLLEGE OF ENGINEERING, TECHNOLOGY, AND ARCHITECTURE

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