



PANORAMA

360° OF WPI ONLINE AND CORPORATE EDUCATION



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Corporate & Professional Education, Worcester Polytechnic Institute



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LETTER FROM THE EDITOR

In the United States, only 23% of women who earn STEM degrees pursue a career in STEM after graduation: a percentage that is down from 26% in 2009*. This number includes women of all races; the number of women of color alone who graduate and stay in STEM is even lower.

But the women of WPI are looking to change that.

This past June, a group of 20 ambitious, driven women of different ages and backgrounds, with varying connections to WPI, came to campus for the same reason: the first-ever WinCorps Women's Leadership Workshop.

WinCorps is a program made possible by the Women's Impact Network, which awards grants for innovative projects that support women of WPI in their endeavors: students, staff, faculty, alumni, and more. WinCorps was created as a resource for women in STEM fields and careers, in the hopes of equipping them with the tools they need to navigate a world that wasn't built with them in mind. As a member of the planning committee for this event, it was invigorating to work on such a meaningful project and inspiring to watch the attendees engage with one another about their common opportunities and challenges. I hope they came away from this event feeling a little less alone, having made connections with folks who truly understand them, and even more excited about pursuing a career in STEM. A huge thanks to the whole planning team at WPI Corporate & Professional Education who made this event possible.

And speaking of careers: welcome to The Corporate Issue of Panorama! Inside this supersized issue, you'll learn about all the ways WPI CPE engages with companies to educate their workforces, and connect them with first-rate research and WPI's coveted network of great minds: our students and alumni! We're excited to share these highlights with you, and if something you see looks like something you need at your workplace, contact us at any time to learn more about the custom educational solutions we build for businesses.

Have a great summer, and happy reading!

Kate Vogel

Panorama Editor





LIFE as a Part-Time Graduate Student

So many WPI employees interact with graduate students, directly or indirectly, but it can be difficult to understand an individual student's holistic journey, and how many people it takes to provide a first-rate graduate education. The many teams involved in this endeavor at WPI were on display this spring at our "Life of a Part-Time Grad Student" event, hosted by WPI CPE. At the event, functional teams from several departments, including Corporate and Professional Education, the Career Development Center, the Academic Technology Center, and Academic Affairs presented how they assist students in their quest for advanced certificates degrees.



“People all over campus contribute to the education and experience of these grad students they never see. Showing the whole experience gives an appreciation and understanding of what grad students go through.”

- Rachel LeBlanc, Assistant Vice President of Academic and Corporate Engagement



“LIFE as a Part-Time Grad Student” allowed directors, faculty, and staff to get to know the coworkers that they collaborate with every day to achieve a shared goal, yet may never get a chance to meet. It was an educational night for all teams involved, physically uniting the huge workforce behind graduate student education at WPI under one roof, if only for an evening. [Read more about the event here.](#)

THE LADIES WHO LAUNCH

3 Stories from Pfizer's New Onsite Graduate Programs

Over the last 2 years, WPI has partnered with Pfizer Andover to build and deliver custom graduate programs in life sciences for their employees. On the surface, it seemed like an easy, breezy process: first-rate courses, engaged collaboration, enthusiastic prospective students.

But how did we get here? *Panorama* got the inside scoop from three women behind the scenes of this exciting new relationship.

Crowd-sourced Customization

Kristin Goppel, Program Development



Many of WPI's customized education programs are designed through collaboration with the client's senior leadership teams, but this would be slightly different; Pfizer Andover preferred that we take our cues directly from their employees.

We first offered a single graduate course in Biochemical Engineering. From there, WPI followed up with the Pfizer colleagues enrolled in the course, and all of them expressed interest in continuing on with a full graduate program. Account Executive Dan Weagle and I then conducted individual interviews with each employee to understand their educational goals, development areas for career advancement, and strategic areas of focus for Pfizer in which they might be

involved. Based on this feedback, we built a set of learning outcomes and used them to map out a 10-course curriculum (that included the first course offering) that would earn the employees an MS in Biotechnology.

The curriculum was presented to the employee cohort in the first course for their feedback, and through an iterative process, their feedback was incorporated into the program design. The result was a robust curriculum, designed with Pfizer employees, for Pfizer employees.

LEARN MORE
WPI Corporate and Professional Education



Invested Employees = Intrinsic Enthusiasm

Kira Bartolotta, Recruitment Specialist

Because the Pfizer Andover program's curriculum was influenced directly by the workforce, employees feel invested in the program. Every time WPI is onsite, employees are excited to stop by and learn more about this great opportunity, because they know it's designed to meet their specific educational needs on the job. Further, current students are excited to tell their colleagues about the program, and great word of mouth is the best way to build cohorts of intrinsically enthusiastic students who are ready to succeed. The onsite delivery of all courses is another bonus!

It's been a true pleasure getting to know Pfizer Andover's intelligent, ambitious workforce and to help them pursue their own educational goals.



Support at Every Step

Sarah LaFrance, Student Success



After courses begin, it's my job to ensure each student at a company feels supported on their road to success. As a part-time grad student with a full-time job myself, I understand what it's like to juggle work, family, and school on an average day. That's why I know how important it is to have someone in your corner, encouraging you and reminding you of crucial milestones along your educational journey.

The first Biotechnology cohort at Pfizer Andover is one of my favorite groups to interact with during course announcements, site visits, and sporadic check-ins. They even created a study group that meets on a regular basis, something I would recommend for any corporate cohort. The camaraderie is one of the main benefits of learning in a group at work, and the effort put forth is recognized by both the WPI professors and representatives at Pfizer. I look forward to supporting them through graduation and am excited to welcome the second cohort in the fall. *Giddyup!*

ENGAGING THE NEXT GENERATION OF POWER PROFESSIONALS

By Monika Maslen

Throughout my WPI career, I have spent most of my work developing relationships with the Energy industry. During this time, I've learned the importance of nurturing an interest in the field of power in students even before they get to college.

After the 2016 IEEE show, I had an idea to reach out to high school students and engage them in science projects related to energy. I spoke with Edvina Uzunovic, PhD, VP of Education at IEEE PES, about this plan, and she presented the idea to IEEE members; they wanted to move forward but needed a champion. Edvina recommended me for the project, and that's how I became the project manager for the IEEE PES T&D High School Initiative.



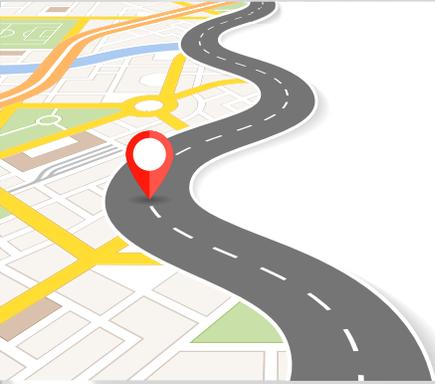
The concept was simple. Wherever the IEEE T&D show is held, we would find high school students to engage in an energy project. This year it was in Denver. I identified high schools that emphasized STEM and project-based learning. I then reached out to the local IEEE chapter to identify a liaison to work with me on this project and reach out to the targeted schools. Stephan Meyer, Electrical Engineer II for Beckman Coulter Life Sciences, became my contact and then volunteered to be a mentor for the students.

The only criteria was “a project focused on energy,” and we were thrilled with the students’ creative results! Two groups took on the challenge, and each were given a mentor from industry. The groups wrote an abstract, pitched their idea to their mentor, and made it come to life with the support of their teachers. In the end, 26 students participated and had the chance to present their projects at the IEEE show in Denver.

I am now working on the 2020 IEEE PES show, and the location is Chicago. I will be working with ComEd members to get this project completed. The goal is to make it bigger each year and at each location, eventually making this an event that will be a competition across the country and engage thousands of young bright minds in the field of power and energy.

This initiative is just an example of how WPI's focus on students and industry can result in greater impact for all those involved. Giving the students the opportunity to attend the IEEE PES T&D show was an honor and provided support to our industry partners looking to develop young audiences interest in power careers.





WHERE IN THE WORLD IS WPI CPE?

Offshore Technology Conference and INCOSE TGCC

By Don Gelosh and Peter Huie

This spring, WPI headed to Texas for two events focused on the oil and gas industry. First there was the Offshore Technology Conference (OTC), an international conference with folks attending from around the world, giving WPI the opportunity to discuss its available graduate programs, delivered online to individuals and companies. WPI's education programs and research in Systems Engineering, Data Science, Robotics, Fire Protection, and Mechanical Engineering gained a lot of visibility at this event.

WPI then attended the Texas Gulf Coast Chapter of INCOSE's second-annual Systems Engineering Conference. The theme of the conference was "A Renewal of Exploration" and focused on opportunities for collaboration and communication in Systems Engineering in the aerospace and oil and gas industries. The conference provided attendees with insight into the business cases for systems engineering and complex systems in aerospace and oil and gas, especially from the perspectives of compliance, cost savings, reliability, and safety. The WPI Systems Engineering program has provided several days of training to some of these oil and gas companies and through our work with the new INCOSE Competency Framework supports their Oil and Gas Working Group.

As times change so do technology and industry challenges, so it's never been more important to integrate research and education with real-world experience. WPI's online programs allow us to educate the world, and our presence at these conferences enables us to create and nurture symbiotic relationships between academia and industry.



ATX West



One of our favorite ways to connect with alumni, industry experts, and potential students is to pack our bags and attend tradeshows all across the country—or perhaps we should say “all the way across” the country. In February we left cold, gray Worcester and landed in warm, sunny Anaheim for North America's largest advanced design and manufacturing event, ATX West. Over 20,000 engineers and executives attend each year, and the array of robotics demonstrations, creative presentations, and innovative solutions never fail to impress.

So how do you capture attendees' attention between table tennis matches with robots? A Rubik's Cube competition, of course! Our big winner, Jose Javier Romero, solved the puzzle in only 13 seconds and took home a Ferrari Lego Kit as his reward. After watching dozens of engineers solve the cube, we're still no better at it, but it was certainly fun to watch.

Thank you to everyone who visited our booth at ATX West. We hope to see more of you as we're out and about this summer, too.

FACULTY SPOTLIGHT

Jamie Monat, PhD, WPI Professor of Practice



Why Businesses Need Systems Thinking

A common business error is the belief that complex problems can be addressed with purely technical solutions. Today's complex issues such as climate change, terrorism, cyber warfare, poverty, hunger, religious conflicts, and clean air and water cannot be solved by purely technological means; organizational, political, economic, environmental, ethical, and sociological factors and their interrelationships often dominate system performance. Systems Thinking acknowledges this and forces analysts to consider these factors.

Systems Thinking is also relevant to most business operations. The success of companies like Apple and Samsung is largely due to their Systems Thinking approach. Steve Jobs focused Apple not on the product, but on the user experience. Again, companies need to define and bound their systems properly: the Apple iPod is not a stand-alone device, but a component of a user-experience system. Conversely, Research in Motion (the manufacturers of Blackberries) failed to realize that cell phones were morphing into personal entertainment/information systems.

I once worked for a company that was dysfunctional. There was extensive friction between departments, an atmosphere of mistrust and concomitant restrictive authorization requirements, destructive competition and back-biting, accounting reports that did not facilitate business management, high employee turnover, high warranty costs, and an inscrutable incentive compensation structure. Sales were flat. The management failed to understand that a company is a system and that the interactions among the system components dominate system performance. Many feedback loops exist in companies and must be managed. In addition, the many structures in companies (the Goals-Behaviors-Metrics-Rewards structure, the reporting relationships, the rules and procedures, the corporate policies) are all based upon Mental Models. The structures deriving from those mental models sometimes are good and intended, and sometimes are unintended and destructive. Events and behavior patterns develop because of those structures. Systems Thinking elucidates the mental models and structures, and helps correct them to yield desired behaviors. These principles can be applied in any industry.

At WPI, I teach Systems Thinking courses in our corporate graduate programs. Corporate cohorts are always fun to teach. In a cohort, the students work for the same company and can share perceptions about the company's strengths and weaknesses. I am often surprised by the different perspectives articulated by various students in the same company; I think that this is often eye-opening for them as well. But it's fun because the students have real business experiences (different from mine!) that they can draw upon, which makes the classes interesting. I've learned a lot from these different perspectives.

FACULTY PROFILE



CORPORATE AND PROFESSIONAL EDUCATION

PROFESSIONAL EDUCATION

- ▶ OPEN-ENROLLMENT TRAINING
- ▶ CUSTOMIZED CORPORATE TRAINING

Technical and Professional Workshops

- ▶ Hands-on training with expert instructors
- ▶ Gain relevant skills and tools that can be immediately applied in the workplace
- ▶ Continuing education credits (CEUs) awarded

[LEARN MORE](#)



WPI

THE LIBRARY CARD



*Exclusive Content from
the CPE Collection*



Systems Thinking Approach to Terrorism

As politicians and military leaders strive to abate the threat of global terrorism, Systems Thinking may lead to a solution. WPI professors Jamie Monat and Tom Gannon have applied Systems Thinking tools in their analysis of the beliefs, goals, and appeal of ISIS. The result? A host of alternative non-military suggestions to address ISIS's influence. Download the whitepaper to dive into this fascinating use of the Systems Thinking approach.



[READ THE WHITEPAPER](#)

Need Qualified Engineers? Make Them!

Back in the early 2000's, Chris Root was faced with a tough question: What can you do when the engineers you need don't exist? In the end, the answer was simple: you make them. Check out this blog, written by Chris Root, Chief Operating Officer for Vermont Electric Power Company (VELCO).

[READ THE BLOG](#)

3 Big Benefits of Learning at Work

Your company offers you the chance to earn your next degree in a cohort setting – the chance to learn alongside your peers! An unconventional way of learning that has long-lasting benefits you didn't even realize. Get caught up by checking out this blog!

[READ THE BLOG](#)



SUPPORTING INDUSTRY NEEDS THROUGH TECHNICAL TRAINING

By Peter Huie, Don Gelosh, and Lindsay Bohigian

WPI's Corporate and Professional Education Department prides itself on their longstanding partnerships with industry corporations. As a pivotal role in that partnership, CPE recognizes the importance of new skills and development for their employees, allowing them to stay on the cutting edge of their industry. In a response to these needs, CPE works alongside their partners to develop customized, hands-on training workshops for their employees, providing skills and tools that can be immediately applied in the workforce.

To highlight one such program, CPE developed a hands-on training program in Systems Engineering was developed to formalize how companies integrate systems techniques and to level set many upcoming engineers. Combining theory and practice, this program has had a positive impact in the defense, medical manufacturing, and most recently in the oil industries. Aligning with competencies and proficiency levels developed by the International Council on Systems Engineering (INCOSE), this program creates a solid foundation and path for the growth of Systems Engineers

Recently, this 10-day, customized training program in Systems Engineering was designed and delivered to Shell International. Shell took this opportunity to then introduce the program to one of their suppliers, TechnipFMC (formally FMC). The program not only created a team approach and common vocabulary, but enhanced the critical customer/supplier relationship.



BRIDGING GAPS & BUILDING PARTNERSHIPS IN THE LIFE SCIENCES

By Ryan Brennan

As the Associate Director of Corporate Relations, it is my job to build bridges between academia and industry. For several years, I have focused on relationship building within the Life Sciences industry. At WPI, we have a unique opportunity to foster relationships with New England's growing biotech community. Since 2013, the Biomanufacturing Education and Training Center (BETC) at WPI has been a facility where industry professionals receive training on various aspects of bioprocessing. In the mold of WPI's motto of theory and practice, the BETC is a highly hands-on center. Training programs are a mix of classroom instruction and hands-on labs in our state of the art facility.



Besides the regular scheduled programs throughout the year, companies will work with us at the BETC to create customized trainings. These customized trainings are geared to the specific needs of the sponsoring organization. For example, a large international biotech company was looking for a 1-day intensive column packing course. Column packing is a critical step in bioprocessing, however, this is not something that biotech employees would do every day. The sponsoring

company was looking to the BETC to give their employees a refresher before they needed to do this critical process in their daily lab work. The company leveraged our talent, facility, and expertise to get their employees up to speed.

This is just one example of how a company has come to us with a training need, and we have provided them with a valuable service. With our pilot-scale lab and in-house subject matter experts, we have worked on development of customized training, research opportunities, and special projects for companies looking to use the BETC as a resource partner. Building these bridges allows us to broaden our connections with corporate partners while providing a valuable service to them.



**Learn More:
WPI BETC**



HOW'S YOUR PD?

We've all been there: your company signs you up for professional development, hoping you will return with all the information and updates you need, but you come back with only surface-level insights that don't stick. You lose days in the office, and your company's budget takes a hit with little return.

These days, organizations offering professional development are popping up left and right. But even if the price is right, you need to be sure you and your workforce are getting what you pay for. Effective professional development increases employee knowledge and skills, and it helps fill in the gaps on current key issues and trends – areas where they may have fallen behind while on the job. The organization delivering your professional development must be tapped in to the latest research, or employees will continue to be a step behind advancements.

WPI delivers research-backed professional development courses to big names in industry in areas like Systems Engineering, Cyber Security, and more. Companies come to us with a problem to solve, and we work with these companies to tailor learning objectives to their workforce's specific knowledge gaps. If your professional development provider isn't doing the same, you may be missing out on the most effective new strategies and practices for your business. For more information on what WPI can offer, [click here](#).



POP QUIZ!

FROM THE CAREER DEVELOPMENT
CENTER AT WPI

Answer key found on back cover

- 1. What was the overall success rate for all degrees (Bachelor's, Master's, PhD) for the graduating class of 2017?**
- 2. Who was the first female to graduate with a degree from WPI?**
- 3. When preparing for an interview with an employer, what are the 3 most important things to study, research, and refresh upon?**
- 4. How many resume critiques did the CDC do in the 2016-2017 academic year? (includes, walk ins, email/dropbox)**
- 5. What is the most popular online graduate program at WPI?**

Learn more about the Career Development Center and how it helps WPI online & corporate students.

Congratulations graduates

CLASS OF 2018



The Class of 2018 has done it! All of their hard work and determination have paid off. WPI celebrated those with graduate degrees in a dedicated ceremony on campus on May 10. CPE students from both online and corporate cohorts made up an impressive 28% of this year's graduating class, a true testament to the growth of online and customized education! CPE kicked off the celebration with a reception in Higgins House, just before students walked across the stage. Our staff gathered with the graduates and their families to take in the big day.



Rounding out the year and leading up to the big day, a select number of students also completed capstone projects, an application of coursework covered in the program to real-world problems that encompasses WPI's motto of theory and practice. Students are encouraged to select projects with practical significance for the advancement of their company's competitive position as well as their own personal development. With advisement and evaluation from WPI faculty members, students seek mentorship from experienced colleagues in their profession for a well-rounded experience.

2018 CAPSTONES SPOTLIGHT



MS IN DATA SCIENCE – UNITED TECHNOLOGIES COMPANY ONSITE: APRIL 2018

*Pictured above: Sponsor – Caerwyn Jones, Sponsor – Paul Wik, Student – Robert Delgado, Student – Christopher Kraenzle,
Corporate and Professional Education – Peter Huie, Sponsor – Jorge Fernandes*

MS IN ROBOTICS ENGINEERING – WPI ONLINE

Our students presented the online format using web conferencing technology.

Presentation Title: Search and Rescue Small Unmanned Aerial System (UAS)

Student – Daniel Belotto

Student – Brian Bojarski

Student – William Calabro

Student – Seth Chapman

Student – Daniel Durusky

Student – Oliver Hiller

Student – Krishna Matta

TAKE A MOMENT TO LAUGH



"I need a list of specific unknown problems that we'll encounter."



"What if, and I know this sounds kooky, we communicated with the employees."



SOCIAL MEDIA MAVENS OF WPI



▶ VIEW TWEET

KATE VOGEL
WPI CPE MARKETING
@k8writesWPI

"Mindfulness allows us to wake up to our lives." 🧘🧘🧘

Huge thanks to Kris Picard (@KineticPresence) for kicking off our retreat today with lessons in mindfulness. Great way to get the mental juices flowing! ❤️



9:44 AM - 12 Jul 2018

3 Retweets 12 Likes



DATES TO REMEMBER

AUGUST

- 5-9 IEEE Power & Energy Society, Portland, OR
- 13-16 The Bioprocessing Summit, Boston, MA
- 21-24 Downstream Principles and Techniques, Worcester, MA

SEPTEMBER

- 10-14 Upstream Processing of Animal Cell Culture Products, Worcester, MA
- 10-15 International Manufacturing Technology Show (IMTS) 2018, Chicago, IL
- 17 Fundamentals of Biomanufacturing, Worcester, MA *(8 week evening program)*
- 19 Project Management Certificate Program, Marlboro, MA *(starts Sept. 19)*
- 27 8th Annual WPI Energy Symposium, Worcester, MA

OCTOBER

- 2-3 Women in Leadership Conference for Higher Education, Cambridge, MA
- 15-16 Single-Use Systems (Biomanufacturing), Worcester, MA
- 21-25 2018 IEEE PES ISGT Europe, Sarajevo, Bosnia & Herzegovina
- 24-26 UPCEA New England Regional Conference, Providence,

[**► VIEW FULL LIST OF CONFERENCES**](#)



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MONIKA MASLEN		Contributor
DAVID MILLER		Contributor

Pop Quiz Answers

1. 94.6% 2. Leslie Small, B.S. in Mathematics in 1972 3. Job description, company, resume/yourself
4. 1,987, not even including alumni resumes! 5. Power Systems