

ALMANACK

The Official Philadelphia Section Monthly Newsletter

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INSIDE THIS ISSUE:

Upcoming Events

IEEE Night

WIE

Order of the Engineers

In Memoriam

Maida Engineering

Connect With Us

The Chair's Message

Dear fellow IEEE Philadelphia Section members,

Happy new year to you all. I hope you celebrated the start of 2020 in good spirits with family and friends. Now that we're a few days into the new year, it's good to look ahead and think about what this year may bring us. But first, a quick look back.

2019 was quite a year for all of us at IEEE Philadelphia Section. We've been through many developments, in sometimes less than favorable circumstances. But we've also achieved a huge amount. Student participation is at its highest in many years. This was evident at the Student Appreciation night and the multiple events organized by Chris Dietsch. I want to welcome all the Philadelphia student branches and encourage you to continue your increased participation with the Section. Another area of growth was an increased participation during the Member Elevation night and multiple individual applications for Senior Member elevation.

The Chair's Message



Senior member is the highest grade for which IEEE members can apply. IEEE members can self-nominate, or be nominated, for Senior Member grade. Some of the benefits of becoming a Senior Member are recognition, leadership eligibility, the ability to refer other candidates and many more. The Philadelphia Section Awards Banquet gives us the opportunity to recognize outstanding engineers in our area. Look for the link on our Section's website to submit candidate names that meet the criteria. I am sure that among the Section we have many outstanding professionals that deserve recognition. If you or someone you know is worth recognizing, please be on the look for the 2020 nomination announcement. This year we will

continue actively participating in the Congressional Visitation Days in Washington, DC. This very important event is an incredible experience to understand and interact with the US Congress. This is an event organized by the IEEE-USA Government Relations organization. And now, 2020 we have critical issues that lie ahead. As we head into 2020, I ask for your continued support of our Section and increase the number of members. My best wishes for a successful 2020 to all our members, existing and new volunteers.

UPCOMING EVENTS

JANUARY 9

The Engineers Club of Philadelphia and PSPE Networking Event with Maida Engineering, Inc.

JANUARY 14

Philadelphia Section AdCom Meeting at the University City Sheraton Hotel

JANUARY 18

Future City Competition at Archbishop Carroll High School

JANUARY 21

IEEE Section Night at the Sheraton Hotel

JANUARY 23

PHL Airport Central Utility, Main Terminal Electric Substation & Generators Building Tour



IEEE Section Night

Smart Cities

By Glen A. Pritchard, P.E.

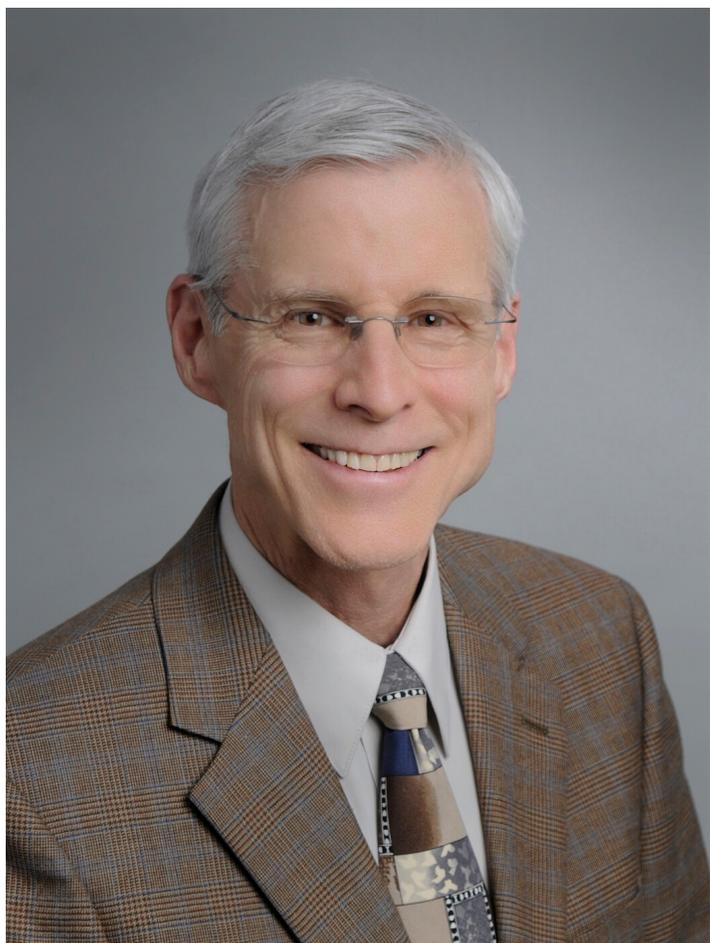
With the advent of the Internet of Things and ever prevalent communications networks, urban communities are now exploring how they can best use these technologies and the data they generate to create Smart Cities. This presentation will explore the many facets that are being integrated to deliver smart solutions with will improve day-to-day life in our cities. Join us on **January 21** to learn more.

Glenn Pritchard is currently the Manager of Advanced Grid Operations and Technology for PECO's Smart Grid/Smart Meter system. PECO's Smart Grid consists of 2.3M electric and gas meters and over 2,000 Distribution Automation devices. Pritchard graduated from Clemson University in 1990 with a B.S. Degree in Electrical Engineering. He is a registered professional engineer in Pennsylvania. He has been with Exelon/PECO in Philadelphia for twenty-seven years where he is responsible for developing new applications that leverage the Smart Grid, AMI Systems and metering data.

Other areas of experience include distribution & transmission engineering, substation automation and communications. Pritchard specializes in finding new applications of existing and emerging technologies. Beyond his work at PECO, Pritchard has taught numerous classes and frequently presents at the key industry venues, including Distributech, EEI and IEEE. He has authored numerous papers on Smart Grids, AMI systems and the use of the data generated by such platforms. Pritchard received EPRI Technology Transfer Awards in 2017 and 2014, the 2010 IEC Grid Vision and the 2008 Utilimetrics' Utility Best Practices Awards for his work in the Smart Grid and AMI fields.



IEEE Section Night



The Battle of Emerging Technologies (AC vs DC)

By Bob Swayne

The recently released movie “The Current Wars” is based on events surrounding the introduction of competing electric A.C. and D.C. power systems in the late 1800s. Let’s dig into the history and technical aspects of these two systems and see what drove a battle of emerging technologies. A.C. versus D.C.: Alternating Current versus Direct Current. What are they, what are their differences, and how are they applied? This presentation will cover a brief history of electricity discoveries starting with Franklin, Volta and Faraday, and focus on the time of Edison, Tesla, and Westinghouse and their “battle of currents”. And with hindsight, we will review Edison’s D.C. system’s fundamental voltage drop limitations and why A.C. became the obvious technological winner. Once A.C. was established, long distance power distribution developed along with motor technology, both which accelerated the industrial revolution. A.C. and D.C.

systems will be technically presented and described along with their applications. Single-phase, two-phase and three-phase motor and generator types will also be discussed and demonstrated. Yes, two-phase. Philadelphia holds a distinction as one of very few cities still using two-phase distribution. Join us for this historical and technical engineering treatise.

Bob retired in 2017 after an electrical engineering and consulting career in a variety of industries including steel, aerospace, educational, commercial, industrial, and transportation. Project types included low and medium voltage power distribution systems, substations, power studies, emergency/standby generator systems, life safety systems, lighting systems, power monitoring and SCADA systems. In his early career, Bob worked in the steel industry designing and applying D.C. systems to large rolling mill motors and overhead traveling cranes. He went on doing same in utility and commercial environments with A.C. synchronous and induction motor controls and drives, which included Philadelphia’s legacy two-phase distribution systems.

Bob is a graduate of Drexel University with BS and MS in Electrical Power Engineering and is a licensed professional engineer in Pennsylvania. He has served positions on IEEE local and national societies including the Philadelphia Power & Energy - Industry Applications Joint Chapter, National Electrical Code panels, and IEEE standards committees. He was 2013 Delaware Valley IEEE Electrical Engineer of the Year and now a Senior Life IEEE member.

Women In Engineering

WIE would like to wish everyone a Happy New Year! We have big plans for the coming year with lots of volunteer opportunities, professional development events, and social events. In 2020, we're reformatting out meetings a bit to include professional development talks and technical discussions for our members and non-members who are interested in WIE. Our first meeting of the year will be held at Penn State Brandywine (room TBD) on January 13. We are very pleased to have speaker, Asma Abuzaakouk, discussing The Neuroscience of Inclusion.

The Neuroscience of Inclusion

By Asma Abuzaakouk

As a Social and Behavioral Scientist, Dr. Abuzaakouk applies evidence-based data driven approaches to innovation and transformational change. Currently, Asma works within the MITRE Corporation's Enterprise Strategy and Transformation Technical Center and Human and Organizational Systems department. Her thought leadership spans organizational and leadership development, culture change, stakeholder engagement, strategic planning, human capital management, strategic communications, and inclusion and diversity. She also trains and coaches leaders and students on inclusive leadership practices, emotional intelligence and transformational leadership styles of behavior. Her focus area is on the Neuroscience of Inclusion. She offers seminars to leaders and students at MITRE, government agencies, and universities including New York University. Asma has provided strategic guidance on the enterprise transformation efforts of the Department of Homeland Security, Department of State, Census Bureau, Department of Veterans Affairs, Department of Defense, Department of Treasury, General Services Administration, and the Internal Revenue Service. Asma obtained her B.S. from Georgetown University in International Relations Law and Organization, her M.A.I.S. from George Mason University in Conflict Analysis and Information Technology, and her Ph.D. in Industrial Organizational Psychology from Capella University. Her research focused on the effects of transformational leadership styles of behavior on innovation potential.





The Order of The Engineers

By Peter Silverberg

Members of the section might like to join the Order of the Engineer. It has been difficult to schedule this independently. The Engineer's Club has provided a venue and time. So, if you are interested, here is your chance. The Engineers' Club, in conjunction with Villanova University, will be a participant in the Order of the Engineer Ring Ceremony sponsored by the University during Engineers Week. This will be an opportunity for you to obtain your Order of the Engineer Ring (please visit www.order-of-the-engineer.org for more information and background on this) and network with Villanova engineering students. Please hold the date of Monday, February 17, 2020 for this event. If you already have your Ring and/or would like to participate but not receive a Ring, you are welcome to attend as well. More information on registration and ordering the Ring will be provided in upcoming email blasts.

In Memoriam: Joseph Bordogna (1933- 2019), Distinguished IEEE Member

Source: Penn Engineering News

Joseph ("Joe") Bordogna, the Alfred Fitler Moore Professor Emeritus of Engineering in Electrical and Systems Engineering and former dean, died on November 25 at the age of 86. Dr. Bordogna was born in Scranton, grew up in South Philadelphia and graduated as the valedictorian of John Bartram High School. He earned a bachelor's degree in electrical engineering at Penn on a Naval ROTC Scholarship in 1955. After serving in the US Navy, Dr. Bordogna won a Whitney Fellowship to MIT, but before enrolling, he worked at RCA in Camden, New Jersey, for a year to refine his academic interests. After earning his master's degree in electrical engineering and computer science from MIT in 1960, he returned to RCA, where he worked in communication systems, radar, transistor technology, holography and lasers.

In 1964, he earned a PhD in electrical engineering from Penn. He joined the faculty of the School of Engineering that year as an assistant professor. He went on to become director of The Moore School of Electrical Engineering, an associate dean and finally dean of the School of



Engineering and Applied Science in 1981. During his tenure at Penn, he won five major teaching awards: The Lindback and S. Reid Warren Jr. Awards, and the off-campus education awards of Western Electric, Westinghouse, and United Engineers and Constructors, Inc. He was also the first master of Stouffer College House.



His research interests included optoelectronics, manufacturing systems, environmental technologies, management of technological innovation, educational innovation and federal science and engineering policy. He made contributions to the engineering profession in a variety of areas, including early laser communications systems, electro-optic recording materials, holographic television playback systems and early space capsule recovery, receiving a commendation for history's first such recovery during Project Jupiter. He also helped create the National Academy of Engineering's well-known high school course in technology, *The Man-made World*. According to Vijay Kumar, Nemirovsky Family Dean, Dr. Bordogna was "the brains" behind Penn's dual-degree Management & Technology program and the man behind "Broader Impacts," a phrase he invented to emphasize the benefits of federal research to a congress that was indifferent to higher education. Dr. Bordogna was also a champion of K-12 education and a founder of PRIME (Philadelphia Regional Introduction for Minorities to Engineering). Throughout his career, he worked to include underrepresented populations in science, technology, engineering and mathematics education. In 1991, Dr. Bordogna left Penn

to become head of the National Science Foundation's Engineering Directorate and was appointed acting deputy director in 1996. He was the NSF's deputy director and chief operating officer 1999-2005, its longest serving deputy director in history at the time of his leaving. He returned to Penn in 2005, earned emeritus status in 2009 and retired in 2011. At that time, the Joseph Bordogna Professorship was established in his name. Among his many honors, he received the National Science Foundation Distinguished Service Medal; was an Eminent Member of Eta Kappa Nu; was a member of the IEEE Honor Society; and he was awarded IEEE's 2008 James H. Mulligan, Jr. Education Medal, the Lifetime Achievement Award of the DC Council of Engineering and Architectural Societies, the US Government Leadership Award of the Semiconductor Industry Association and the Leadership in Technology Management Award from the International Conference on Management of Engineering and Technology. Dr. Bordogna was highly regarded in the Section. He was Chair 1987-88. He received the Philadelphia Section Member Award in 1995. He was the Delaware Valley Electrical Engineer of the Year in 2005. He was president of IEEE in 1998. He was a Fellow of IEEE (year unknown). He is survived by his wife Frances; son Ray (E'93) (Whitney Deas); granddaughter Avery; and numerous cousins. In lieu of flowers, contributions may be made in his memory to the Police Athletic League (PAL) of Phila. (www.phillypal.org/support/; or by calling the Chief Development Officer at 215-291-9000, ext. 101.

**The Engineers Club of Philadelphia &
Pennsylvania Society of Professional Engineers
Philadelphia Chapter
Pizza, Course, Presentation and Networking**

Thursday, January 9, 2020

Registration & Pizza and Wings: 5:30 PM to 6:00 PM

Course #1: 6:00 PM to 7:00 PM

**NFPA 70E – 2018 and IEEE 1584 – 2018
New Methods and Formulas**

Presented by

Joseph F. Maida, PE

Maida Engineering, Inc.

Everyone who works on commercial or industrial design and/or construction project should be aware of the danger they could be exposed. In 2018, NFPA 70E, Standard on Electrical Safety in the Workplace, and IEEE 1584, Guide for Performing Arc Flash Calculations, had major revisions. This course will describe the revisions and how these will affect completed and future arc flash risk assessments.

Course #1: 6:00 PM to 7:00 PM

Ethical – Rightness, Fairness and Equity – PE Licensure

Presented by

Joseph F. Maida, PE

Maida Engineering, Inc.

As defined by Merriam Webster, "ETHICAL may suggest the involvement of more difficult or subtle questions of rightness, fairness, or equity". This course will discuss Professional Engineering Laws in many states and why they may or may not be Ethical by exposing the costs and dangers of being in "Responsible Charge"

The Pennsylvania Society of Professional Engineers, through PIE, will evaluate and approve these "courses" as meeting the continuing education license requirements for 1.0 Professional Development Hour in New York State. PSPE believes the "courses" will be accepted for credit in PA, NJ and other National Model states where courses do not require pre-approval.

Pennoni Associates

1900 Market St

Suite 300

Philadelphia, PA 19103

Price using Paypal - \$25.00

FOR RESERVATIONS GO TO:

<http://www.pspe-philly.org>

**The Engineers Club of Philadelphia,
Pennsylvania Society of Professional Engineers
Philadelphia Chapter &
Philadelphia Section of IEEE**

**PHL CENTRAL UTILITY, MAIN TERMINAL ELECTRIC
SUBSTATION & GENERATORS BUILDINGS TOUR**



Thursday, January 23, 2020

Registration: 6:30 PM to 6:45 PM

**ATTENDEE NAME AND LAST 4 DIGITS OF SSN ARE REQUIRED
PHOTO ID MUST BE PRESENTED AT REGISTRATION**

Assembly and Briefing: 6:45 PM to 6:55 PM

Tour 7:00 PM to 8:00 PM

Presented by

Lawrence R. Ebling, PE

Senior Construction Manager
Burns Engineering, Inc.

The tour will focus on the Central Utility Building and the Main Terminal Electric Substation and Generators Building for the Philadelphia International Airport. Attendees will be able to observe and hear descriptions and capabilities of the equipment (chillers, boilers, pumps, controllers, switchgear, transformers, generators etc.) that provide conditioned water and electrical power that are distributed throughout the airport for heating and cooling.

The Pennsylvania Society of Professional Engineers, through PIE, will evaluate and may approve this "activity" for the continuing education license requirements for 1.0 Professional Development Hour in New York State. PSPE believes the "activity" will be accepted for credit in PA, NJ and other National Model states where courses do not require pre-approval.

Assembly at West End of Baggage Claim B-C

(Free Parking for up to 30 Cars or Use SEPTA Rail to Baggage Claim)

Price using Paypal - \$5.00

ON LINE RESERVATION BEFORE JANUARY 21, 2020 IS REQUIRED - GO TO:

<http://www.pspe-philly.org>

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