



# **Engineers Joint Committee of Long Island**

*Anthony Cacioppo, P.E., Co-Chair*

*Paul Lanzillotta, P.E., Co-Chair*

## **ENGINEERS WEEK SEMINAR SERIES**

*Thursday, February 11, 2016*

**Place:** *Holiday Inn Plainview - 215 Sunnyside Boulevard, Plainview, NY 11803  
516-349-7400 (Front Desk)*

<b>Program:</b>	<b>8:00 am – 9:00 am</b>	<b>Registration &amp; Continental Breakfast</b>
	<b>9:00 am – 10:00 am</b>	<b>Morning Seminars</b>
	<b>10:00 am – 10:15 am</b>	<b>Break</b>
	<b>10:15 am – 12:15 pm</b>	<b>Morning Seminars Cont'd.</b>
	<b>12:15 pm – 1:15 pm</b>	<b>Lunch</b>
	<b>1:15 pm – 2:15 pm</b>	<b>Afternoon Seminars</b>
	<b>2:15 pm – 2:30 pm</b>	<b>Break</b>
	<b>2:30 pm – 4:30 pm</b>	<b>Afternoon Seminars Cont'd.</b>

### **Seminars & Descriptions**

***“JFK Light Rail Construction” (1 PDH) 9:00 am – 10:00 am***

**Presented by: Henry Hessing, P.E., Haider Engineering**

The JFK Light Rail System (LRS), at 8.3 miles, is the longest segmental girder construction in the NYC environs. It reduced traffic volume in the Central Terminal Area (CTA) within the first year of operation which was much sooner than projected by the Environmental Impact Statement (EIS). The \$1.9 billion project had the added benefit of reducing traffic volume on Van Wyck Expressway (I678). The presentation's focus is construction with particular interest in cantilever construction of precast post tensioned segments.

***“Security Considerations for the Internet of Things,***

***Part 1: Introduction to the Internet of Things” (1 PDH) 9:00 am – 10:00 am***

**Presented by: Dr. M. Nazrul Islam, Associate Professor, Security Systems & Law Enforcement Technology, Farmingdale State College  
Frank Zinghini, CEO, Applied Visions**

The Internet of Things (IoT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. This introduction will discuss and define these “things” and provide examples of their application. It will cover fundamental concepts, history and growth, characteristics and applications. It will also consider the full range of applications as well as the supporting technologies involved.

***“Variable Air Volume Systems Optimized” (1 PDH)***

**9:00 am – 10:00 am**

**Presented by: Chuck Weaver, Accutherm, LLC**

The designer must never forget that the primary purpose of HVAC is comfort for the building occupants. Fortunately, comfort and saving energy go hand in hand with Variable Air Volume (VAV) systems. Advanced VAV systems provide a zone of control for each building occupant, good temperature satisfaction, and avoid the energy waste of any overcooling or overheating. In addition to comfort and energy savings, the benefits of a VAV zone for each occupant include higher worker productivity and improved ability to lease the space. This presentation will discuss the comfort provided by Therma-Fuser VAV diffusers with a closer look at the location of the thermostat and VAV damper. The operation of the diffuser will be broken down explaining the positive induction temperature measurement and energy harvesting thermostat/actuators. A low energy, low pressure system built around the Therma-Fuser VAV diffusers will be discussed along with the adaptability of the system to future tenant changes and the costs of the system. Basic system design will also be covered along with sample applications.

***“Electrical Instruments in Hazardous Areas” (2 PDH)***

**10:15 am – 12:15 pm**

**Presented by: Shane Filer, Sales Manager, Neal Systems, Inc.**

This seminar discusses the design, selection and installation of electrical instruments for use in industrial areas prone to explosion hazards. Four main hazardous area electrical protection methods will be presented: Explosion Proof Enclosures, Intrinsic Safety, Purging and Non-Incendive, with guidelines for use of these methods. Strengths and weaknesses will be considered when designing, installing or maintaining each type. Factors driving decisions and solutions will be discussed, and typical applications of each method will be presented with associated optimizing solutions for given applications.

***“Security Considerations for the Internet of Things,***

***Part 2: Security Considerations, Potential Vulnerabilities, Exposures and Risk Implementing an Internet of Things Device” (1 PDH)***

**10:15 am – 11:15 am**

**Presented by: Dr. M. Nazrul Islam, Associate Professor, Security Systems & Law Enforcement Technology, Farmingdale State College  
Frank Zinghini, CEO, Applied Visions**

This presentation will discuss the challenges faced in designing and implementing various Internet of Things devices depending upon the functions to be performed and the range of the network connections required. Then it will cover potential solutions to these challenges along with various security techniques that can be applied.

***“Security Considerations for the Internet of Things,***

***Part 3: Design and Development of an Internet of Things Device with Particular Attention to Device Security” (1 PDH)***

**11:15 am – 12:15 pm**

**Presented by: Arnold Stillman, President  
Thomas V Canino Jr., Chief Technology Officer  
Poem Technology LLC**

This presentation will cover a specific Internet of Things device, the iLevel system, a tank level monitor. The discussion will cover specific customer requirements surfaced during an exhibit of

another product, the preliminary considerations leading to the design concept, the evolution of final hardware design and then the definition and specification of the Internet of Things characteristics and implementation with due consideration of security.

***“Computational Fluid Dynamics and Heat Transfer” (2 PDH) 10:15 am – 12:15 pm***

**Presented by: Nicholas DiZinno, Ph.D., P.E.**

**SUNY Maritime College**

The equations that govern fluid flow and heat transfer are extremely complex. In many instances, they are impossible to solve in an analytical (closed-form) manner. In these cases, engineers are forced to rely on numerical techniques and computer simulations to generate a solution. This seminar will give a broad overview of the process of developing numerical solutions to fluid dynamics and heat transfer problems. Starting with the governing equations, we will investigate why they are so difficult to solve and how numerical solutions can provide an alternative. A variety of numerical algorithms will be surveyed; with critical attention paid to how different algorithms are more suited to different types of equations. Select results from a variety of applications will be presented.

***“Electrical Metal Enclosed Bus Duct 101” (2 PDH) 1:15 pm – 3:15 pm***

**Presented by: John McClelland, Technibus Inc.**

This course will focus on applications and technology of metal enclosed bus duct. Topics will include an interactive discussion on design, ratings, specifications and fabrication of major types including segregated phase-bus, non-segregated phase-bus, isolated phase-bus. In addition an overview will be provided of past projects and installations for each type and custom engineering and fabrication capabilities.

***“Building and Designing in Coastal Areas” (2 PDH) 1:15 pm – 3:15 pm***

**Presented by: Drexel Hermann, P.E. Product Support Engineer**

**Weyerhaeuser - Trus Joist**

This course reviews IRC and FEMA recommendations and requirements for specifying treated wood products in structures built in coastal areas. We'll look at treatment requirements and compare product options based on these criteria and other design considerations.

***“Variable Refrigerant Flow 101” (2 PDH) 1:15 pm – 3:15 pm***

**Presented by: Bill Artis, LEED AP BD+C, Project Manager/Senior Project Engineer**

**Daikin Applied New York**

This seminar will cover an overview of VRF systems; to include a review of the Variable Refrigerant Flow concept, design considerations, review of general system operation, and commissioning considerations.

***“Communication Information Structures and Contents for Enhanced Safety of Highway Vehicle Platoons”*** (1 PDH)      **3:30 pm – 4:30 pm**

**Presented by: Lijian Xu, Ph.D., Assistant Professor**

**Department of Electrical and Computer Engineering Technology**

**Farmingdale State College - SUNY**

Highway platooning of vehicles has been identified as a promising framework in developing intelligent transportation systems. By autonomous or semi-autonomous vehicle control and inter-vehicle coordination, an appropriately managed platoon can potentially enhanced safety, improved highway utility, increased fuel economy, and reduced emission. This seminar is focused on quantitative characterization of impact of communication information structures and contents on platoon safety. By comparing different information structures which combine front sensors, rear sensors, and wireless communication channels, and different information contents such as distances, speeds, and drivers' actions, we reveal a number of intrinsic relationships between vehicle coordination and communications in platoons. Typical communication standards and related communication latency are used as benchmark cases in our study. The findings of this study provide useful guidelines in sensor selections, communication resource allocations, and vehicle coordination.

***“Quality of Hurricane Damage Engineering Reports”*** (1 PDH)      **3:30 pm – 4:30 pm**

**Presented by: David B. Peraza, P.E., M.ASCE, Principal Engineer**

**Exponent**

As recently reported by “60 Minutes”, in the wake of Hurricane Sandy, engineers were sued and were accused of preparing fraudulent reports. Was there really criminal activity, was there unethical practice, or was it ‘just’ poor quality work? This session will present a detailed look at what really happened, focusing on two high-profile lawsuits, and what engineers could have done to prevent this.

***“Run Around Energy Recovery Systems”*** (1 PDH)      **3:30 pm – 4:30 pm**

**Presented by: Rudolf Zaengerle, President, Konvekta's North American operation**

HVAC systems are among the greatest energy consumers of large buildings, especially buildings with High percentages of outside air. High-performance run-around energy recovery systems (RAERS) with advanced control software are operating at efficiencies of net 70 to 90. While the thermodynamics of an energy recovery system are relatively simple, it is critical that high-performance systems operate at optimum performance under varying operating parameters to maximize energy recovery. This seminar will discuss basic thermodynamics of a run-around energy recovery system, identifying drivers for demand-dependent controls of the entire energy recovery system, advantages and pitfalls of multi-functional energy recovery systems in laboratory buildings with variable air volumes, best practices in designing energy recovery systems.

## **SCHEDULE**

	Room A	Room B	Room C
9:00a-10:00a 1 hr	“JFK Light Rail Construction”	“Security Considerations for the Internet of Things” Part 1	“Variable Air Volume Systems Optimized”
10:00 – 10:15	BREAK		
10:15a-12:15p 2 hr	“Electrical Instruments in Hazardous Areas”	“Security Considerations for the Internet of Things Part 2”	“Computational Fluid Dynamics and Heat Transfer”
		“Security Considerations for the Internet of Things Part 3”	
12:15p-1:15p	LUNCH		
1:15p-3:15p 2 hr	“Electrical Metal Enclosed Bus Duct 101”	“Building and Designing in Coastal Areas”	“Variable Refrigerant Flow 101”
3:15 – 3:30	BREAK		
3:30p-4:30p 1 hr	“Communication Information Structures and Contents for Enhanced Safety of Highway Vehicle Platoons”	“Quality of Hurricane Damage Engineering Reports”	“Run Around Energy Recovery Systems”

### **MEMBER SOCIETIES**

New York State Society of Professional Engineers  
 -Nassau Chapter  
 -Suffolk Chapter  
 American Institute of Aeronautics & Astronautics  
 Institute of Industrial Engineers  
 American Society of Civil Engineers

Institute of Electrical & Electronic Engineers  
 American Society of Heating Refrigeration & Air Conditioning Engineers  
 American Society of Mechanical Engineers  
 Society of Women Engineers  
 NY Association of Consulting Engineers  
 Society of Manufacturing Engineers

Farmingdale State University  
 Stony Brook University  
 Hofstra University  
 Instrument Society of America  
 American Society for Engineering Education  
 American Society for Quality



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## **ENGINEERS WEEK SEMINAR SERIES**

***Thursday, February 11, 2016***

***Holiday Inn Plainview - 215 Sunnyside Boulevard, Plainview, NY11803***

**To register, complete and return this form with payment by February 8, 2016 to:**

**Amanda J. Haimes, 172 Sherry St, East Islip, NY 11730. Ph: 631-252-4111.**

**Email questions to: ajhaimes@gmail.com**

**ALL FIELDS MUST BE COMPLETED. PRINT NEATLY. CHECK ALL SEMINARS YOU WISH TO ATTEND.**

**Fee:** \_\_\_\_\_ **\$125 for full day (4-6 PDH); includes lunch**  
\_\_\_\_\_ **\$75 for half day (3 or fewer PDH); includes lunch**

_____	9:00am – 10:00am	“JFK Light Rail Construction” (1 PDH)
_____	10:15am – 12:15pm	“Electrical Instruments in Hazardous Areas” (2 PDH)
_____	1:15pm – 3:15pm	“Electrical Metal Enclosed Bus Duct 101” (2 PDH)
_____	3:30pm – 4:30pm	“Comm. Info. Structures & Contents for Safety of Hwy Vehicle Platoons” (1PDH)
_____	9:00am – 10:00am	“Security Considerations for the Internet of Things, Part 1” (1 PDH)
_____	10:15am – 11:15am	“Security Considerations for the Internet of Things, Part 2” (1 PDH)
_____	11:15am – 12:15pm	“Security Considerations for the Internet of Things, Part 3” (1 PDH)
_____	1:15pm – 3:15pm	“Building and Designing in Coastal Areas” (2 PDH)
_____	3:30pm – 4:30pm	“Quality of Hurricane Damage Engineering Reports” (1 PDH)
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_____	3:30pm – 4:30pm	“Run Around Energy Recovery Systems” (1 PDH)

**Total PDH** \_\_\_\_\_ **Total Amount Enclosed \$** \_\_\_\_\_

**Make check payable to: Engineers Joint Committee of LI**

Name \_\_\_\_\_ Phone \_\_\_\_\_

Company \_\_\_\_\_ Address \_\_\_\_\_

E-mail Address \_\_\_\_\_

**NOTE: WE NOW ACCEPT CREDIT CARDS. If using a credit card, fill out above and below and e-mail this registration form to ajhaimes@gmail.com**

Credit Card Number \_\_\_\_\_ CCV Code \_\_\_\_\_

Credit Card Type ( MC, Visa, AE, Disc.) \_\_\_\_\_ Expiration Date \_\_\_\_\_

Zip Code Associated With Credit Card \_\_\_\_\_