

The



# IEEE Newsletter

PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

*NJ Section PACE, GOLD:*

## Engineers Meet:

### The Engineer's View

On Wednesday, February 10, 2010 the North Jersey Section Professional Activities Committee and Graduates of the Last Decade will host a meeting to host a meeting to discuss the "The Upside of Being Downsized." Our speaker will be Diane Young.

#### About the Meeting

If you have been downsized or fear that you may be, then you will want to attend this informative and thought-provoking seminar.

You will learn: How to turn a challenge into an opportunity by changing your outlook.

Through experiential exercises, how to set and achieve goals. Tips on how to survive and thrive in a down economy.

This is a discussion group that is designed to be fun and interactive. Handouts will be given so you may apply what you have learned long after the seminar has ended.

#### About the Speaker

Diane Young is a certified professional coach who focuses on both relationship and career transition coaching. She completed her studies at the Institute for Professional Excellence in Coaching (iPEC), a renowned training program accredited by the International Coach Federation (ICF).

The LYF Experience is the name of Diane's coaching practice and LYF stands for Love Yourself First. Diane has learned that success begins with self-love and self-acceptance. She works closely with her clients to help them let go of self-defeating thoughts and behaviors, discover their potential, take action and achieve their personal and career goals.

In response to this challenging economic climate, Diane founded and facilitates a support and networking group called The Unemployed Optimists where participants can connect and feel inspired and motivated during their transition. Feature stories on this group have appeared in The Record, The Star Ledger and Herald News and on News 12 NJ.

Diane's practice includes individual,

couples and group coaching. She may be reached at [diane@thelyfexperience.com](mailto:diane@thelyfexperience.com).

#### All Welcome!

Members and students from all professional societies and engineering disciplines are welcome. We now have attendees from IEEE, ASME, NSPE, ASCE and AEA. For information about these groups see:

[www.aea.org](http://www.aea.org)  
[www.ieeeusa.org/policy/care](http://www.ieeeusa.org/policy/care)  
[www.ieeeusa.org](http://www.ieeeusa.org)  
[www.programmersguild.org](http://www.programmersguild.org)  
<http://web.njit.edu/~ieeenj/>  
[www.asme.org/sections/northjersey](http://www.asme.org/sections/northjersey)

CARE is the Congressional Advocacy Recruitment Effort CARE is a voluntary network of IEEE members who are interested in public policy. To help and for information go to [www.ieeeusa.org/policy/care/](http://www.ieeeusa.org/policy/care/).

**Time:** 6:30 PM to 9:00 PM, Wednesday, February 10, 2010. Refreshments will be served.

**Place:** Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.

**Information:** Paul Ward, (973) 790-1625, [PWard1130@aol.com](mailto:PWard1130@aol.com), Richard F. Tax, (201) 664-6954, [rtax@aea.org](mailto:rtax@aea.org).

## Region 1 Award Nominations

Nominate a colleague. Region 1 of IEEE offers a variety of awards to recognize the engineering accomplishments of members. Specific award categories include: technological innovation, engineering organization, academic teaching, enhancement of IEEE image in the public or industry and sustained IEEE service. To obtain additional information about these categories visit the Region 1 website

[www.ieee.org/r1](http://www.ieee.org/r1)

Once at the site click on Section Information on the far right column. On the Section page click on Region 1 Awards Information. We will assist you. To nominate a qualified individual prepare a 200-word summary (including the individual's name, IEEE number and IEEE US postal mail address) specifying the accomplishment of the candidate.

Send the summary to our Awards Chair *Ken Oexle, 11 Deerfield Road, Whippany, NJ 07981*, prior to May 1. The North Jersey Awards Committee will review the summary; suggest any changes; complete the nomination form; and forward it to the Region 1 Awards committee with a Section endorsement.

Award nominations are evaluated and approved at the Region 1 Summer Meeting and plaques are presented at the following North Jersey Section Annual Awards Reception.

**FEBRUARY 2010**

# February 2010

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### IEEE NJ SECTION HOME PAGE

<http://web.njit.edu/~ieeenj/>

### IEEE NJ SECTION NEWSLETTER HOME PAGE

<http://web.njit.edu/~ieeenj/NEWSLETTER.html>

### REPORT ADDRESS CHANGES TO:

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*The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7:00 PM. Meetings are open to all members. For information on meeting agenda contact Secretary Russell Pepe at (201) 960-6796, [rcpepe@ieee.org](mailto:rcpepe@ieee.org).*

*NJ SMC Society:*

## Deadlock-free and Ratio-enforced Supervision of Automated Manufacturing Systems Using Petri Nets

On Thursday, March 11, 2010, the NJ Systems, Man & Cybernetics (SMC) Chapter will be hosting a seminar on "Deadlock-free and Ratio-enforced Supervision of Automated Manufacturing Systems Using Petri Nets." Mr. Hesuan Hu, a visiting PhD student in New Jersey Institute of Technology, will be the presenter.

### About the Talk

In automated manufacturing systems (AMSS), Petri nets are widely adopted to solve the supervisory control problems. Among them deadlock-freeness and fairness constitute two important parts. The former ensures no occurrence of deadlock situations so as to inhibit the emergence of the partial or complete blockage of the processing of jobs. The latter ensures a reasonable regulation scheme for orderly resolution such that a desired ratio can be achieved among different processes. This work proposes an efficient method for designing the supervisors, which are based on the invariance property of Petri net models of AMSS. A novel approach is proposed to iteratively produce empty siphons as the solutions of a set of linear inequalities. We show that the implementation of these two supervisors can be separately performed. The applicability of these results is illustrated through examples. Comparison with the previous work is presented to demonstrate the advantages of the proposed approach.

### About the Speaker

Hesuan Hu received the BS and MS

degrees from Xidian University, Xi'an, P. R. China, in 2003 and 2005, respectively. He is currently working towards the PhD degree at Xidian University. Since 2008, he has been a research scholar in the Electrical and Computer Engineering Department, New Jersey Institute of Technology, Newark, where he has also served as an Adjunct Professor in charge of two graduate courses since 2009. From 1997 to 2000, he was an Assistant Engineer at the Metrology Department of Xi'an Aircraft Engine Control Engineering Co., Ltd., where he was appointed as the Director of the Electrical and Electronic Laboratory from 2001 to 2002. His research focuses on Petri nets and their application, automated manufacturing systems, resource allocation systems, and discrete event systems. In the above areas, he authored or co-authored 40 papers on various peer-reviewed journals or conferences including a number of IEEE Transactions. Also, he is an active reviewer for more than 10 prestigious international journals as well as many conferences. Since 2008, he has served as a program committee member for several conferences.

### All Welcome!

You need not be a member of IEEE to attend, and there is no charge for admission.

**Time:** 7:00 PM (light refreshments at 6:45 PM), Thursday, March 11, 2010.

**Place:** New Jersey Institute of Technology (NJIT), Room 202, ECE Center (Intersection between Warren & Summit Streets), Newark, NJ. Directions are available at <http://www.njit.edu/about/visit/gettingtonjit.php>.

**Information/RSVP:** Dr. Mike Liechenstein (973-471-0721) or E-Mail: [itsmikesju@aol.com](mailto:itsmikesju@aol.com) or [zhou@njit.edu](mailto:zhou@njit.edu). Please RSVP and check the electronic newsletter for any changes.

## From the North Jersey Section's Education Committee: **Hot courses can enhance your position in the job market**

IEEE North Jersey Education Committee ran programming and management courses since 1993. 229 IEEE members and non-members completed these courses. Benefits: Some got jobs at AT&T and Microsoft Corporation.

We need hot courses, instructors and classrooms. If you can teach a hot course (any course that can get people jobs), email your one-page abstract and your resume. If your NJ firm can provide a conference room, evening or Saturday morning, contact Donald Hsu, Chair, [yanyou@hotmail.com](mailto:yanyou@hotmail.com). Thank-you and act NOW!

# IEEE North Jersey Section Activities

## February 2010

**Feb. 3** – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 77 River Rd, Clifton, NJ. Russell Pepe at [rcpepe@ieee.org](mailto:rcpepe@ieee.org).

**Feb. 10** – “Digital Radiography” by Dr. Lucian A. Kasprzak, NJ EDS/C&S Chapters, 7:00 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center (Intersection between Warren & Summit Streets), Newark, NJ. Dr. Durga Misra (973) 596-5739 ([dmisra@njit.edu](mailto:dmisra@njit.edu)), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Richard Snyder (973) 492-1207 (RS Microwave).

**Feb. 10** – “Engineers Meet: The Engineer’s View” by Diane Young, NJ PACE, GOLD, 6:30 PM to 9:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Paul Ward, (973) 790-1625, [PWard1130@aol.com](mailto:PWard1130@aol.com), Richard F. Tax, (201) 664-6954, [rtax@aea.org](mailto:rtax@aea.org).

**Feb. 25** – “Convert Your Consulting Business into a Full-Fledged Engineering Company” by Dan Kamdar, NJ Consultants' Network, 6:00-8:30 PM, Morris County Library, 30 East Hanover Avenue, Whippany, NJ. Robert Walker, (973) 728-0344, or visit [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).

**Feb. 26** – “Arc Flash Seminar” by Alton Baum, PE, NJ PES/IAS, 9:00 AM to 2:00 PM, Automatic Switch Company, 50 Hanover Road, Florham Park, NJ. Ronald W. Quade, PE, (732) 205-2614 or [rwquade@ieee.org](mailto:rwquade@ieee.org).

### Upcoming Meetings

**Mar. 3** – “NJ Section Meeting”, 6:30 PM, “Executive Committee Meeting” - 7:00 PM, ITT, 77 River Rd, Clifton, NJ. Russell Pepe at [rcpepe@ieee.org](mailto:rcpepe@ieee.org).

**Mar. 11** – “Deadlock-free and Ratio-enforced Supervision of Automated Manufacturing Systems Using Petri Nets”, by Hesuan Hu, NJ SMC Society, 7:00 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center (Intersection between Warren & Summit Streets), Newark, NJ. Dr. Mike Liechenstein (973-471-0721) or E-Mail: [itsmikesju@aol.com](mailto:itsmikesju@aol.com) or [zhou@njit.edu](mailto:zhou@njit.edu). Please RSVP and check the electronic newsletter for any changes.

**Mar. 13 - May 15** – “C# .NET Programming” by Donald Hsu, PhD, 9:00 AM to 12:00 PM, Room ECEC 202 , NJIT, 161 Warren Street, Newark, NJ. Donald Hsu, [yanyou@hotmail.com](mailto:yanyou@hotmail.com).

**Mar. 24** – “North Jersey Spring 2010 Student Presentation Contest”, NJ Section, 6:00 PM, FDU, Teaneck, NJ. For more information contact [northjerseysac@ieee.org](mailto:northjerseysac@ieee.org) or [jignasa.ray@ieee.org](mailto:jignasa.ray@ieee.org).

**Mar. 25** – “Brushless DC Motors – More Knowledge Means Better Results” by Steven R. Garfinkel, NJ Consultants' Network, 6:30-8:30 PM, Morris County Library, 30 East Hanover Avenue, Whippany, NJ. Robert Walker, (973) 728-0344, or visit [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).

**Apr. 6 - May 25** – “Project Management” by George Sierchio, 6:30 PM to 9:00 PM, Room: ECEC 202 , NJIT, 161 Warren Street, Newark, NJ. Donald Hsu, [yanyou@hotmail.com](mailto:yanyou@hotmail.com).

**May 2** – “NJ Section Awards Reception” - 3:00 to 6:00 PM at the Birchwood Manor, 111 North Jefferson Rd, Whippany, NJ. Anne Giedlinski (973) 377-3175.

**Members and Non-Members Welcome**  
**PLEASE POST**

NJ EDS/C&S:

## Digital Radiography

On February 10, 2010, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Digital Radiography." The speaker will be Distinguished Lecturer, Dr. Lucian A. Kasprzak.

### About the Talk

If you or someone you know has had an x-ray recently, you may have discovered that things have changed in the radiology department. Almost all the techniques used today are digital. Some techniques used in the radiology department of a hospital are digital by nature. As examples, Computed Radiography, Magnetic Resonance Imaging and Computed Tomography come to mind. However, general radiography and mammography were not digital as originally conceived. These two types of medical radiography have gone through a transition in the last 15 years, resulting in the displacement of x-ray film radiography by digital devices. This change in media, so to speak, allows radiologists to see images almost instantaneously. Further, the infrastructure is now in place to quickly send these images literally around the world for analysis or second opinion.

After a brief description of the x-ray film technique, we will explore the digital technologies used in general radiography and mammography. The image capture technologies and their applications will be described with a focus on aspects of resolution and detection. These detectors use TFT technology similar to that used in flat panel displays. Key attributes of the detector pixels, such as, fill factor, modulation transfer function, detective quantum efficiency and fixed pattern noise will be reviewed. In addition, the components, materials and processes used in the fabrication of these devices will be examined to lend perspective on their performance and reliability. Finally, some practical challenges for possible future improvement will be advanced.

### About the Speaker

Lucian A. Kasprzak received the PhD degree in Solid State Technology from the Materials Science Department of Stevens Institute of Technology in 1972, while on an IBM Resident Fellowship. He received a BS in Physics from Stevens in 1965 and an MS in Physics from Syracuse in 1970. He has worked, his entire career, on reliability of semiconductor devices and ICs, from their inception as discrete devices to ULSI. He discovered the hot electron effect in short channel MOSFET devices in 1973 while at IBM, from which he

retired in 1995. The past 14 years, he has been in the medical device industry in various R&D organizations. He pioneered the creation of IEEE transactions on Device and Materials Reliability and is on the Board of Directors of the International Reliability Physics Symposium. Dr. Kasprzak is a Fellow of the IEEE.

### All Welcome!

You do not have to be a member of the IEEE to attend.

**Time:** 7:00 PM, Wednesday, February 10, 2010. Free buffet will begin at 6:15 PM.

**Place:** New Jersey Institute of Technology (NJIT), Room 202, ECE Center (Intersection between Warren & Summit Streets), Newark, NJ. Directions are available at <http://www.njit.edu/about/visit/gettingtonjit.php>.

**Information:** Dr. Durga Misra (973) 596-5739 ([dmisra@njit.edu](mailto:dmisra@njit.edu)), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. Richard Snyder (973) 492-1207 (RS Microwave).

*NJ Consultants' Network:*

## Convert Your Consulting Business into a Full-Fledged Engineering Company

On Thursday, February 25, 2010, the IEEE Consultants' Network of Northern NJ ([www.TechnologyOnTap.org](http://www.TechnologyOnTap.org)) will present an informative talk, of great interest to all independent engineering professionals. Dan Kamdar will discuss how you can expand your one-man consulting business into a lucrative Engineering Company.

### About the Topic

Many consultants stay in a small practice and never fully realize the potential of growing into a bigger business. Some may prefer this as their personal choice.

However, if you want to turn your practice into a multi-million dollar business, we highly recommend that you attend this talk. It will certainly spark your thinking.

Mr. Kamdar will describe how he joined CNNNJ about 10 years ago and started his consulting company. Soon thereafter, he embarked on a path of expansion of the business. His 'Affordable Engineering Services, LLC' is nowadays a thriving company with about 275 employees. As he will explain, that accomplishment requires a specific mindset.

### About the Speaker

Dan Kamdar worked for Boeing as a

Senior Engineering Manager, in charge of a group of some fifty engineers. After 25 years at Boeing he retired and started his own consulting business. Dan, who is both an engineer and a businessman, moved from California to New Jersey in 1997.

Mr. Kamdar earned MBA, MSEE, BSEE and BSME degrees from the California State University and from the University of Michigan.

### About the Consultants' Network

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

### All Welcome!

Free admission – members and non-members are welcome.

**Time:** 6:00-8:30 PM, Thursday, February 25, 2010.

**Place:** Morris County Library, 30 East Hanover Avenue, Whippany, NJ. Directions to Library: [www.mclib.info](http://www.mclib.info).

**Information:** For up-to-date meeting status, call Robert Walker, (973) 728-0344, or visit our website, [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).

## TCF-2010

The 35th Annual Trenton Computer Festival (TCF) will be held Saturday & Sunday, April 24th & 25th, 2010 <http://www.tcf-nj.org>.

The TCF IT Professional Conference is Friday April 23rd.

New this year, the ARRL NJ Amateur Radio Convention is being held coincident with the festival, on Sunday April 25th, all at The College of New Jersey, Ewing, New Jersey.

This year we are focusing on Open Source Software, but we are still interested in covering all topics relating to computers and digital technology. As 2010 is our 35th year, we are also seeking talks that deal with the history of PCs and their impact on society. We are looking for talks (50 minutes) and tutorials/workshop (100 minutes) on all forms of computer, digital electronics, information, communications technology, robotics, home/environmental control, Vid/Podcasting, gaming and digital home entertainment, digital photography, wireless technology, networking.

If you have an idea for a talk or workshop/tutorial for TCF, please fill out a Speaker Application form at [http://tcf-nj.org/speaker\\_registration.html](http://tcf-nj.org/speaker_registration.html).

If you are interested in more information, or in speaking at the other related events. For the IT Professional Conference contact David Soll at [dsoll@Omicron.com](mailto:dsoll@Omicron.com). For the Amateur "The IEEE Newsletter" – February 2010 - Page 4 NJ

Radio Conference contact Gary Wilson at k2gw@optonline.net. For TCF in general, contact Allen Katz, TCF Program Chairperson, a.katz@ieee.org, telephone: 609-771-2666, fax: 609-631-0177, US Mail: Dr. Allen Katz, School of Engineering, The College of New Jersey, PO Box 7718, Ewing, NJ 08628-0718.

## Volunteer Teacher for 11-week apprenticeship with middle school students in Newark

Citizen Schools is a national non-profit serving low-income middle-school students after school, extending the number of hours spent in an active learning environment. A core program element is the project-based student apprenticeship. Each semester, generous volunteers get trained to become Citizen Teachers who lead these hands-on apprenticeships on a topic of their choosing, and about which they are both passionate and knowledgeable. These apprenticeships culminate in a WOW! moment where students teach back what they learned via the creation of a high-quality product, service or presentation that demonstrates their mastery.

We have a renewed focus on science, technology and engineering and are looking for ways to bring these to life in an exciting way to our students. This semester's offering has ranged from an Arup Consulting Engineering working with them on structural engineering to the students learning mechanical engineering principles by creating a dance pad. We are currently recruiting volunteers for the Spring semester (starting week of February 8<sup>th</sup>) to spend 90 minutes a week on either a Tuesday or Thursday (for 11 weeks) as Citizen Teachers in Newark (NJ) and would be interested in engaging yourself and/or your organization in the process. To learn more about the program (<http://www.youtube.com/profile?v=mx4xeO3Xq7g&user=citizenschoolsonline>), read about past apprenticeships (<http://ctnation.citizenschools.net/dotnetnuke/Teach/ThinkIt/ApprenticeshipIdeaBank/tabid/151/Default.aspx>) or apply to become a Citizen Teacher (<http://ctnation.citizenschools.net/dotnetnuke/Volunteer/SignUp/tabid/175/Default.aspx>).

To apply: <http://ctnation.citizenschools.net/dotnetnuke/Volunteer/SignUp/tabid/175/Default.aspx>

If you have any questions, please contact Bing Howell at [binghowell@citizenschools.org](mailto:binghowell@citizenschools.org).

## North Jersey Spring 2010 Student Presentation Contest

The Spring 2010 Student Presentation Contest is coming up! The North Jersey Section will be holding a presentation contest scheduled for March 24, 2010, for undergraduate and graduate students. This contest has been held in years past. Its overwhelming success in generating student participation and interest make it a fantastic event for up and coming engineers. This year's contest will feature similar prizes (\$\$\$) and have graduate and undergraduate categories.

The main focus of the presentation contest is to give students an opportunity to sharpen their communication skills, and help prepare for real life situations as practicing engineers and researchers. Additionally, the North Jersey Section contest provides an excellent chance for students to practice for the Region I Student Paper contest in Spring.

The contest at the North Jersey Section level is also supplemented by awarding cash prizes to the three best presentations in both graduate and undergraduate categories. All engineering students are encouraged to participate in submitting team or individual presentations on any project work related to engineering. This local contest does not require students to write a full paper, just a slide-based presentation on technical or non-technical work is sufficient. Senior design projects, lab projects, personal engineering hobbies, engineering policy, etc., are great topics to submit. Moving onto the regional contest requires submitting a short written paper.

The details of contest rules, judging criteria, viable topics for presentations, and abstract form will be same as last year. Also, if you would like to get an idea of what topics would be appropriate or how you can prepare your abstract, take a look at winners from past years at the NNJ IEEE SAC homepage archive.

This year's North Jersey Section Contest will be open to graduate and undergraduate students and first/second/third place prizes will be awarded in each category of \$100/\$75/\$50. All participants MUST REGISTER by submitting an abstract by filling in the form available at the SAC website to qualify as a contest participant.

**Time:** starting at 6:00 PM with dinner at 5:30 PM, Wednesday, March 24, 2010.

**Place:** FDU, Teaneck, NJ ([http://www.fdu.edu/visitorcenter/directions/teaneck\\_map.html](http://www.fdu.edu/visitorcenter/directions/teaneck_map.html)).

**Information:** If you have any questions,

please email the contest organizer, [northjerseysac@ieee.org](mailto:northjerseysac@ieee.org) ([jignasa.ray@ieee.org](mailto:jignasa.ray@ieee.org)).

## North Jersey Section Seeks Committee Chairs and Volunteers

The North Section is seeking new volunteers to help conduct business for the benefit of its membership. There are a variety of volunteer positions open and available. They range from technical to non-technical, leadership or just participatory. For Society Chapter Chairs, you must be a member of the corresponding IEEE Society.

If you would like to become involved with volunteering in some of these efforts or positions or just become more informed about what is happening at the North Jersey Section, please contact Dr. Chandra Gupta at [c.gupta@ieee.org](mailto:c.gupta@ieee.org). You are welcome to attend the Section business meeting held the first Wednesday of every month to find out more and other volunteer activities that require some help.

Some committees needing volunteers include the following. Please contact the person indicated for additional information.

- Power Electronics Society Chapter Chair - contact [c.gupta](mailto:c.gupta@ieee.org) below.
- GOLD (Graduates of the Last Decade) Affinity Group Volunteers and Committee members needed - contact [northjerseygold@ieee.org](mailto:northjerseygold@ieee.org)
- WIE (Women in Engineering) Affinity Group Volunteers and Committee members needed - contact [kduncan@ieee.org](mailto:kduncan@ieee.org)
- Membership Development Committee Chair and Volunteers - contact [c.gupta](mailto:c.gupta@ieee.org) below.

Additionally, if interested volunteers would like to get more general information about the Section, including a complete listing of all chapters and committees, visit the North Jersey Section website <http://web.njit.edu/~ieeenj/>, or contact Dr. Chandra Gupta [c.gupta@ieee.org](mailto:c.gupta@ieee.org).

## Elevate to Senior Member Grade!

To get information and an application to advance to Senior Member Grade, see <http://www.ieee.org/web/membership/senior-members/>. For further information or to find potential references, contact Mario Ogava, Membership Chair, at [m.ogava@ieee.org](mailto:m.ogava@ieee.org).

# 1<sup>st</sup> Transistor IEEE Milestone Dedicated at Alcatel-Lucent Bell Labs

by Michael Miller and Howard Leach



*(Photo by Pete Bryon of Morris Plains)*

L-R seated are early Bell Labs researchers: Dr. Alfred Mac Rae, Dr. Walter Brown, and Dr. Morris Tanenbaum.

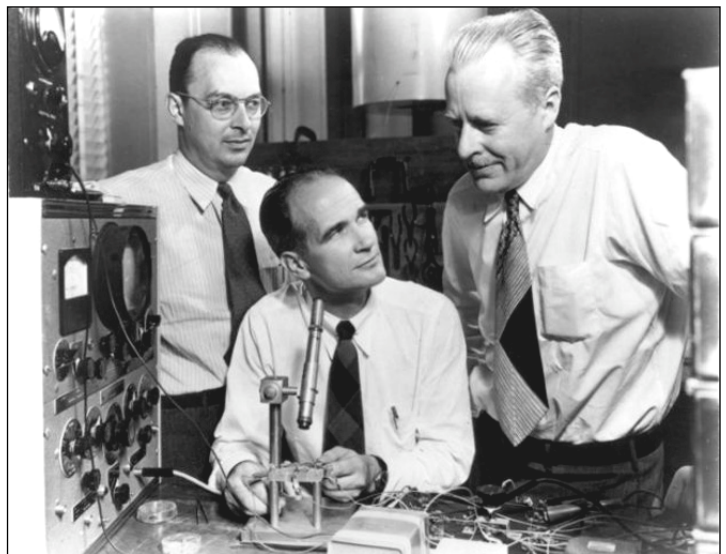
L-R standing are: Dr. Michael Geselowitz Director, IEEE History Center at Rutgers University, Dr. Alexander B. Magoun, Executive Director, David Sarnoff Library, Dr. Rod C. Alferness, Chief Scientist at Alcatel-Lucent Bell Labs, Dr. Charles P. Rubenstein, Director-Elect, IEEE Region 1, Dr. Durga Misra, Chair, Southern Area, IEEE Region 1, and Amit J. Patel, Chair, IEEE North Jersey Section.

The North Jersey Section's fourth milestone plaque, with following citation, was officially dedicated at a ceremony held at Alcatel-Lucent Bell Labs, 600 Mountain Ave., Murray Hill, NJ, on Tuesday, December 8<sup>th</sup>. The dedication was hosted by Dr. Rod C. Alferness, Chief Scientist at Alcatel-Lucent Bell Labs, and was attended by over 80.

## *'Invention of the First Transistor at Bell Telephone Laboratories, Inc., 1947*

*At this site, in Building 1, Room 1E455, from 17 November to 23 December 1947, Walter H. Brattain and John A. Bardeen -- under the direction of William B. Shockley -- discovered the transistor effect, and developed and demonstrated a point-contact germanium transistor. This led directly to developments in solid-state devices that revolutionized the electronics industry and changed the way people around the world lived, learned, worked, and played.'*

After opening remarks by Amit J. Patel, Section Chair, Dr. Durga Misra Chair, Southern Area, Region 1, and Dr. Charles P. Rubenstein, Director-Elect, Region 1, Dr. Alex Magoun, the 2009 IEEE History Committee Milestone Coordinator and advocate for this milestone, explained the purpose of the IEEE Milestone program. It recognizes significant technological innovations in areas promoted by the IEEE that have occurred at least twenty-five years ago. Then some early Bell Labs researchers reminisced about the early transistor pioneers shown to the right.



*John Bardeen, William Shockley, and Walter Brattain with the First Transistor, Dec. 1947*

*Photo courtesy of Alcatel-Lucent Bell Labs*

Dr. Alfred MacRae, IEEE Life Fellow, NAE, EDS Past President, of Berkeley Heights, joined a department in Bell Labs in 1960 that included Walter Brattain. He noted that Walter Brattain was a superb experimentalist and a down to earth person who bragged more about his marksmanship from a galloping horse while growing up on the family ranch in Washington State than his scientific accomplishments. Later, Dr. MacRae, as Director of the Advanced Integrated Circuit Technology Laboratory, interacted with William Shockley and referred to him as the most intellectually stimulating person he ever met. Dr. MacRae has been recognized for his pioneering work on ion implantation in integrated circuit fabrication, was Director, AT&T Skynet Satellite Communications Laboratory, and continues as a consultant in satellite communications systems.

Dr. Walter Brown, NAE, of Berkeley Heights, related how John Bardeen was a thoughtful person and always took time to answer a question and invariably had the right answer. He also stated that William Shockley always knew what had to be done and instructed his staff precisely how to proceed which was not always well received.

Dr. Morris Tanenbaum, IEEE Life Fellow, NAE, of Short Hills, joined the Bell Labs Chemical Physics Department in 1952 and worked on the chemical composition of transistors. At William Shockley's prompting and with the invaluable collaboration of the technician Ernie Buehler, he made the world's first silicon transistor in January 1955. He provided reasons why silicon was preferred over germanium and some problems that had to be solved. Some of the above is from his 'First-Hand Histories' article entitled 'Beginning of the Silicon Age' and his 'Oral-History' both on the IEEE Global History Network.



Dr. Robert E. Kerwin, another Bell Labs researcher, on the left, was also recognized for his early transistor contributions. He was the winner of the IEEE Jack A. Morton Award for contributions to the basic understanding and innovative development of MOS device technology. The process described in his patent on the silicon gate technology is the basis of all transistors that comprise modern very large scale integrated circuits.



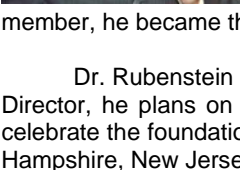
Dr. Alferness, (left) Chief Scientist at Alcatel-Lucent Bell Labs, NAE, Fellow - Optical Society of America, and a member the IEEE Photonics Society, was formerly the Bell Laboratories Research Senior Vice President. He also serves on Optical Society's Executive Management Committee within the European Conference. He introduced Ken Oexle, (right) the North Jersey Awards Chair and Master of Ceremonies, who expertly handled with ease all the introductions beginning with Amit J. Patel, Chairman of the New Jersey Section.



Amit J. Patel, on left, thanked Alcatel-Lucent for hosting the luncheon and recognized the efforts of the Robert W. Abbott, Chief, and Edward J. Eckert, of Alcatel-Lucent Bell Labs Intellectual Property, Deb McGregor and Thomas J. McCarthy of Alcatel-Lucent Bell Labs Communications, and Ken Oexle and Howard Leach of the North Jersey Section for their support with the Milestone Nomination and dedication ceremony.



Next, Dr. Durga Misra, on right and Chairman of Southern Area, Region 1, described the geographic area and recognized the numerous IEEE Fellows in attendance.



Then Dr. Charles Rubenstein, on left, Region 1 Director Elect at that time, reminisced about his early start in engineering beginning with a trip to Bell Labs in the fall of 1963 as a student of Sheepshead Bay High School, LI. As a senior, he was selected by his physics teacher for a weekend of presentations and discussions with Bell Labs scientists. This trip inspired him, in part, to continue with a career in electrical engineering. The rest is history. He earned a doctorate in Bio-engineering at the Polytechnic Institute of New York and a Masters in Library and Information Science at Pratt Institute. Dr. Rubenstein is Professor of Engineering and Information Science at Pratt Institute's graduate School of Information and Library Science. An IEEE senior member, he became the Region 1 Director and a member of the IEEE Board of Directors on January 1<sup>st</sup>.

Dr. Rubenstein noted that the transistor was the twentieth milestone approved in Region 1, the Center of Technology. As Director, he plans on working with the IEEE History Center staff on identifying other potential milestones within Region 1 to celebrate the foundations of our profession that have occurred in the Region's states: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

Closing remarks were given by Dr. Rod C. Alferness who noted that the transistor is considered by many to be one of the greatest inventions of the twentieth century. The transistor is the key active component in practically all modern electronics. Its importance in today's society rests on its ability to be mass produced using a highly automated process that achieves astonishingly low per-transistor costs.

*NJ Consultants' Network:*

## **Brushless DC Motors – More Knowledge Means Better Results**

On Thursday, March 25, 2010, the IEEE Consultants' Network of Northern NJ ([www.TechnologyOnTap.org](http://www.TechnologyOnTap.org)) will present Steven R. Garfinkel, Principal of Ellipsah LLC, who will discuss how BLDC motors are constructed, their performance and how to select them.

### **About the Topic**

Brushless DC motors are used in high performance servo systems. They are capable of high power output in a given size, making them the motor of choice for weight- or size-sensitive applications. When properly applied, they are enormously robust.

This discussion will cover the basics of the construction of BLDC motors. Without resorting to heavy math, the basics of their design will be presented, to

provide attendees with a more complete understanding of how they work and what features to look for. Users of BLDC motors will be in a better position to ensure they get a motor that will work from their supplier.

The primary components of a BLDC motor are the magnets, laminations, insulation, commutation sensor and windings. Each will be briefly discussed. A systematic approach to the selection of a BLDC motor for a specific application will be presented. If you have any questions about how BLDC motor work, you will find the answers in this presentation.

### **About the Speaker**

Steven Garfinkel received his BSc and MEng in Electrical Engineering from Rensselaer Polytechnic Institute in Troy, New York. He designed autopilots, flight control actuators, rescue hoists, cargo winches and industrial tools over his career of more than twenty five years. His company, Ellipsah LLC, provides complete servo system design services,

including custom motors and controllers. Steven can be reached at [sgarfinkel@ellipsah.com](mailto:sgarfinkel@ellipsah.com) or at (973) 432-7401.

### **About the Consultants' Network**

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

### **All Welcome!**

Free admission – members and non-members are welcome

**Time:** 6:30-8:30 PM, Thursday, March 25, 2010.

**Place:** Morris County Library, 30 East Hanover Avenue, Whippany, NJ. Directions to Library: [www.mclib.info](http://www.mclib.info).

**Information:** For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at [www.TechnologyOnTap.org](http://www.TechnologyOnTap.org).



## **LISAT2010**

**Sixth Annual IEEE Long Island Systems, Applications and Technology Conference**

**Friday, May 7, 2010**

The Institute for Research & Technology Transfer at Farmingdale State College  
State University of New York - Farmingdale, NY

*Farmingdale  
State College*

## ***CALL FOR PAPERS, PRESENTATIONS, EXHIBITORS and STUDENT PAPERS***

The Long Island Systems, Applications and Technology (LISAT) Conference features several parallel professional tracks including topics in Systems, Applications, and Technology, along with an Exhibit Hall. We are currently soliciting submissions for participation in both the Technical Program and the Exhibit Hall, and are interested in papers, presentations, and exhibits that showcase the development and use of technology by local organizations. LISAT 2010 will also provide the opportunity for select student papers to be presented. Undergraduate and graduate students are encouraged to submit papers in an area of their interest or current work.

Preliminary acceptance to the Technical Program will be based on a 300-to-500-word abstract. Authors of accepted abstracts will be required to provide a six (6) page IEEE standard manuscript (in MS Word format) for publication in IEEE *Xplore*, and will be required to make a power point presentation at the conference. Manuscripts are subject to the LISAT Technical Program Committee's peer review and may require revision prior to final acceptance. Important dates for the Technical Program are:

Oct 31, 2009:	Abstracts due (300-to-500 words)
Nov 15, 2009:	Notification of accepted abstracts
Nov 30, 2009:	Biographies of authors and ½-page presentation outlines due
Jan 15, 2010:	Manuscripts for publication (MS Word) and copyright releases due
Jan 30, 2010:	Notification of final acceptance of manuscripts
Feb 15, 2010:	Presenter Registration Fee and two (2) sentence presentation descriptions due
Apr 1, 2010:	Power Point slide presentation due
May 7, 2010:	LISAT2010 Conference

For more information see <http://ewh.ieee.org/conf/lisat/>



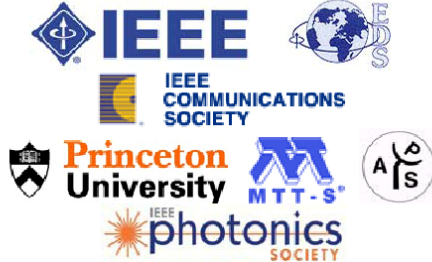
# Call for Papers

## The 33<sup>rd</sup> IEEE Sarnoff Symposium 2010

### Sponsor

**IEEE Princeton/Central Jersey  
Section**

### Co-Sponsors (approved and pending)



### Conference Chairs:

**Nicholas Madamopoulos** (City College of CUNY)  
**Ajay Rajkumar** (Alcatel-Lucent)

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**Narayan Gehlot**

### Web master:

**Komlan Egho** (NJIT)

Since 1978 the IEEE Sarnoff Symposium has been bringing together a tremendous and rich diversity of telecom experts from industry, universities, and government. The popularity of the Sarnoff Symposium, again being held in the historic Nassau Inn located in the heart of downtown Princeton, NJ, continues to grow as the premier forum for researchers, engineers, and business executives in the North East drawing an attendance from all over the world. Besides the technical paper presentations, the Symposium will include *tutorials*, *student paper poster presentations*, *executive panels*, and *exhibition*.

Prospective authors are encouraged to submit a full paper for review. Only original papers that have not been published or submitted for publication elsewhere will be considered. The submission process is carried through the *EDAS conference management* system (<http://edas.info>). The manuscripts must follow the IEEE two-column format with single-spaced, 10-point font in the text. The maximum paper length is of five (5) pages. A sixth page may be accepted after an additional fee. Submission of a regular paper implies that at least one of the authors will have a full registration to the Conference and present the paper upon the acceptance of the submission. Manuscript template available at: [www.sarnoffsymposium.org](http://www.sarnoffsymposium.org).

All accepted papers (after review by experts in the field) will be presented in oral sessions, included in the *33rd IEEE Sarnoff Symposium Proceedings* and published through **IEEE Xplore**. Student papers should be submitted to the Student Papers Chair ([praghuwanshi@devry.edu](mailto:praghuwanshi@devry.edu)). Prospective tutorial presenters should contact the Tutorials Chair ([ekpodzo@msn.com](mailto:ekpodzo@msn.com)).

### IMPORTANT DATES

Papers, Panel and Tutorial Proposals Due:	Nov. 15, 2009
Student Papers Due:	Dec. 5, 2009
Notification of Tutorials Acceptance:	Jan. 7, 2010
Notification of Papers Acceptance:	Jan. 30, 2010
Final Version Due:	Mar. 1, 2010

### CONFERENCE SCHEDULE

Tutorials:	Apr. 12, 2010
Paper Sessions and Panels:	Apr. 13-14, 2010
Exhibits:	Apr. 13, 2010
Poster Presentations:	Apr. 14, 2010

The Symposium is soliciting state-of-the-art research papers, panels and tutorial proposals in the following areas of interest.

### Wireline Communication Systems

- Triple / Quad Play Architectures
- Broadband Access Networks
- IPTV

### Optical Communications & Networking

- WDM Systems and Devices
- Broadband Access Communications
- Radio over Fiber (RoF)

### Wireless Communications Systems

- 4G Cellular and Wireless LAN Systems
- MIMO Transmission Schemes
- Hierarchical Networks (Femto, Pico, Relays)
- Radio Resource and Interference Management
- Self Configuring and/or Optimizing Networks (SON)
- Sensor, Mesh and Ad Hoc Networks
- Free Space Optics (FSO) Wireless Systems
- Ultra Wideband (UWB) Communications
- Power Management for Green Communication
- Satellite Communication Systems
- Military Communication Systems
- Disruption Tolerant Networks

### Communications and Information Theory

- Network Information Theory
- Cross-Layer Optimization Schemes

### Applications

- Multimedia Applications for Mobile and Tethered Users
- Mobile Payment Applications
- Trust, Security, and Privacy
- Business Models for Mobile Applications

### Wireless Communications Components

- Power Amplifiers
- Microwave Devices
- Antennas Design
- RF Repeaters
- Transceivers

# IEEE North Jersey Section Course C# .NET Programming

Saturday, March 13, 2010 through May 15, 2010

Eight weekly classes (March 13, 20, 27, April 3, 10, May 1, 8, 15, 2010)

Place: Room ECEC 202, New Jersey Institute of Technology, 161 Warren Street, Newark, New Jersey 07102  
(Checks should not be mailed to this address)

## IEEE North Jersey Section thanks New Jersey Institute of Technology, for sponsoring this course.

The IEEE North Jersey Section is offering a course entitled "C# .NET Programming". Since 2004, C# .NET has generated significant headway in Fortune 1000 enterprise development systems. Dice.com lists 700+ C# .NET jobs in the New York tri-state area daily! This course will cover the fundamentals of C# language, the .NET framework, window and web-based applications, ADO.NET, ASP.NET, and XML. It will be useful for anyone to develop applications based upon these tools.

You will receive the IEEE Certificate of Completion when you finish the course. Microsoft Corp. has MCAD and MCSD certifications. You may wish to get certified by taking the necessary Microsoft exams with the knowledge gained from this course.

Instructor: **Donald Hsu, Ph.D.**, has been a corporate manager for 11 years and is an experienced trainer. Since 2004, he has trained 700+ people in database, Java, WebLogic, XML, and C# .NET courses in 7 organizations.

### TOPICS

1. Compare the enterprise development tools using Java to C# .NET
2. Define Visual Studio .NET Version 2005 to 2008
3. Identify C# syntax, data type, control structures and common language runtime
4. Distinguish methods, arrays, object-oriented programming
5. Build graphical user interface, multithreading, files and streams
6. Explain the benefit of using extensible markup language (XML)
7. Select database, SQL server, and ADO .NET
8. Choose ASP .NET, web forms, web services, advanced topics
9. Present student Projects

**WHERE:** Room ECEC 202, New Jersey Institute of Technology, 161 Warren Street, Newark, NJ.

**WHEN:** Eight Saturdays, March 13, 20, 27, April 3, 10, May 1, 8, 15, 2010, 9:30 am to 12:00 noon.

**COST:** IEEE (& affiliate) members \$500; Non-IEEE members \$550.

**CONTACT:** Donald Hsu, [yanyou@hotmail.com](mailto:yanyou@hotmail.com)

### REGISTRATION: C# .NET Programming

Please mail the completed registration with a check (payable to "North Jersey Section IEEE") to:

**Donald Hsu, Chair Education Committee, IEEE North Jersey Section, P.O. Box 2093, Fort Lee, New Jersey 07024.**

Name: \_\_\_\_\_ Email address \_\_\_\_\_

Non-member

IEEE Member Member #: \_\_\_\_\_ Member of \_\_\_\_\_ technical society

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home Address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_ Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**

As soon as the completed registration form and the payment are received, you are officially registered for this course.  
Registration status will be confirmed by email.

I wish to receive IEEE Completion Certificate

Signature: \_\_\_\_\_

# IEEE North Jersey Section Course Project Management

*Tuesday Evenings, April 6, through May 25, 2010  
Eight weekly classes (April 6, 13, 20, 27, May 4, 11, 18, 25, 2010)  
New Jersey Institute Technology, 161 Warren Street,  
Newark, New Jersey (Checks should not be mailed to this address)*

## IEEE North Jersey Section thanks New Jersey Institute Technology for sponsoring this course

The North Jersey Section IEEE is offering an evening course entitled "Project Management". Dice.com lists 5800+ Project related jobs in the New York tri-state area daily! This course will help you to break down a master project into manageable tasks, pinpoint possible solutions, and provide information to keep the project under control. Using Microsoft Project software, you will learn to accomplish various project plans. In addition, it will greatly enhance your business, communications and interpersonal skills.

You will receive the IEEE certificate of completion when you finish the course. You may wish to take two Certification exams, one in Project Management administered by Project Management Institute from the knowledge that you learned in this course. (This is not an exclusive PMP-PMI examination prep course. No PDUs are issued for PMP eligibility. CEU credits would be given by IEEE)

Instructor: **George Sierchio**, business owner with 16 years of experience. He did technical consulting, training, and managed over 30 projects. He trained 500+ adult students in the last 10 years.

## TOPICS

1. Explain the need for a project manager
2. Define SOW, PERT, GANTT, CPM, and Scope of the project
3. Identify the team members, resources and plan for the strategy
4. Calculate schedule, budget variances, and monitor project progress
5. Manage changes, estimates, and communications
6. Set a baseline, import tasks from MS Excel, export Project files to MS Word
7. Create and modify custom reports, templates and combination views
8. Share resources and create a master plan loaded to Project Server
9. Approve updates and conclude a project plan
10. Analyze global E-Commerce and present student Projects

**WHERE:** Room ECEC 202, New Jersey Institute of Technology, 161 Warren Street, Newark, NJ.

**WHEN:** 8 Tuesdays, April 6, 13, 20, 27, May 4, 11, 18, 25, 2010, 6:30-9:00 PM.

**COST:** IEEE (& affiliate) members \$500; Non-IEEE members \$550.

**CONTACT:** Donald Hsu: [yanyou@hotmail.com](mailto:yanyou@hotmail.com)

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## REGISTRATION: Project Management

Please mail the registration form with the check (**Checks payable to "North Jersey Section IEEE"**) to  
**Donald Hsu, Chair Education Committee, IEEE North Jersey Section, P. O. Box 2093, Fort Lee, NJ 07024**

Name: \_\_\_\_\_ Email address \_\_\_\_\_

Non-member

IEEE Member Member #: \_\_\_\_\_ Member of \_\_\_\_\_ technical society

Employer: \_\_\_\_\_

Employer Address: \_\_\_\_\_

Home Address: \_\_\_\_\_

Business (day) telephone #: \_\_\_\_\_ Home telephone #: \_\_\_\_\_

Please enclose required fee payable to: **North Jersey Section IEEE**

As soon as a completed registration form and the payment are received, you are officially registered for this course. Registration status will be notified by email.

I wish to receive the IEEE Completion Certificate

Signature: \_\_\_\_\_

# NJ Power & Energy Society/Industry Applications Society

## Arc Flash Seminar

The PES and IAS Chapters will sponsor a technical seminar on the topic of arc flash. The session will be held on Friday, February 26, 2010 at Automatic Switch Co., 50 Hanover Rd, in Florham Park, NJ.

### Topics

#### Arc Flash:

- ✓ Intro/Recap of Arc Flash – concern, standards, etc.
- ✓ The "Compliance" Process
- ✓ Limits of Approach
- ✓ NFPA 70E-2009 – highlighting changes to 70E-2004
- ✓ Review of Hazard Risk Categories and PPE descriptions
- ✓ IEEE 1584-2002 – overview, what's ahead
- ✓ Arc Flash Study – including typical results / recommendations
- ✓ Incident Energy Equations – a comparative analysis
- ✓ Using the 70E Tables vs. 1584 Equations
- ✓ NESC 2007
- ✓ Coordination vs. Arc Flash
- ✓ Labeling
- ✓ Your Electrical Safety Program – considerations
- ✓ Your Electrical Safety Program – keeping it EVERGREEN
- ✓ Technical Concerns from the Practitioner
- ✓ Latest Industry Practices

### About the Instructor

The speaker will be Alton Baum, PE from AB Engineering, LLC. Mr. Baum carries over 20 years of utility generation and industrial power systems experience working for Westinghouse, Eaton Electrical, and Square D. After starting his career as a field engineer in large generators/excitation, Mr. Baum focused in the area of power systems analyses, power quality investigation/solution, and, most recently, arc flash analysis. In 2007, Mr. Baum started an independent engineering consulting practice, AB Engineering, LLC, which provides power engineering services to the industrial/commercial markets. He has performed hundreds of short circuit, overcurrent coordination, and arc flash studies, and has been teaching in these areas for most of his career. Mr. Baum holds the BS degree in Electrical Engineering from West Virginia Institute of Technology (1987), the Master of Business Administration from Widener University (1998), and the MSEE in Power Engineering from Drexel University (2003). He is a member of IEEE, board member of the Delaware Valley Power Quality Group, and holds Professional Engineer licenses in multiple states.

The registration fee for this seminar will be \$150 for non-IEEE members, \$100 for IEEE Members, \$75 for GOLD Graduates (last 1-10 years) and \$25 for students with valid ID. The fee will be waived for IEEE Life Member Grades with verification at the seminar. The seminar fee includes lunch, refreshments and handouts. Non-members joining IEEE within 30 days of the seminar will be rebated 50% of the IEEE registration charge.

If desired, IEEE Continuing Education Units will be offered for this course - a small fee of \$25 will be required for processing. A total of 0.4 CEUs will be offered. Please indicate if desired below.

- Time:** 9:00 AM to 2:00 PM (lunch is included), Friday, February 26, 2010.  
**Place:** Automatic Switch Company, 50 Hanover Road, Florham Park, NJ 07932 (973-966-2000)  
**Directions:** From Route 80 Take I-287 to Exit 37 (NJ 24 East - Springfield). Take NJ 24 East to Exit 2B (Columbia Turnpike). Proceed 2.2 miles to Hanover Road (6th set of traffic lights). Turn left on Hanover Road (AAA Building). Automatic Switch will be on the right (0.4 mile). Enter first driveway-marked shipping/receiving and proceed to visitor parking lot on the left. Follow sidewalk to office entrance door.  
**Information:** Ronald W. Quade, PE, (732) 205-2614 or rwquade@ieee.org

### Registration: Arc Flash Seminar 2/26/2010

Register via US mail to: Ronald W. Quade, PE  
Eaton Electrical  
379 Thornall St, 8<sup>th</sup> Floor  
Edison, NJ 08837

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

IEEE # \_\_\_\_\_ Student @ \_\_\_\_\_ Non IEEE \_\_\_\_\_ Life Member \_\_\_\_\_

Continuing Education Units: \_\_\_\_\_ Yes \$25 \_\_\_\_\_ No

If CEUs are chosen, please include a \$25 processing fee

Payment Enclosed \$ \_\_\_\_\_

**Make checks payable to North Jersey Section IEEE (Credit Cards cannot be processed at this time).**